

GOVERNMENT OF INDIA

DEPARTMENT OF ARCHAEOLOGY

**CENTRAL ARCHAEOLOGICAL
LIBRARY**

CALL No. 913.3205 A.E.

D.G.A. 79.

LIBRARY, A. W. PETRIE.
Acc. No. 34.014.
Date 29.5.58.
..... 913-3205
A.E.

ANCIENT EGYPT. Net price of each number from booksellers is 2s.

Subscriptions for the four quarterly parts, prepaid, post free, 7s., are received by Hon. Sec. "Ancient Egypt" (H. Flinders Petrie), University College, Gower Street, London, W.C. 1.

Books for review, papers offered for insertion, or news, should be addressed:—

Editor of "Ancient Egypt,"
University College, Gower Street, London, W.C. 1.

Subscriptions received in the United States by:—

Miss Helen Gardner, Art Institute, Michigan Boulevard,
Adams Street, Chicago, Ill.

ANCIENT EGYPT

1924.

JUNE. PART II.

CONTENTS.



1. BRITISH SCHOOL IN EGYPT.
ORIGIN OF THE XIITH DYNASTY.
FLINDERS PETRIE.
2. ANCIENT CLEPSYDRAE.
R. W. SLOLEY.

3. MAQRIZI'S NAMES OF PHARAOHS,
AND NOTES.
M. A. MURRAY.
4. REVIEWS.

5. PERIODICALS:
COMPTE RENDUS.
ZEITSCHRIFT.

EDITOR, PROF. SIR FLINDERS PETRIE, F.R.S., F.B.A.

YEARLY, 7s. POST FREE.

QUARTERLY PART, 2s.

BRITISH SCHOOL OF ARCHAEOLOGY IN EGYPT.
MACMILLAN AND CO., LONDON AND NEW YORK;

AND
EGYPTIAN ARCHAEOLOGICAL
RESEARCH ACCOUNT,
LIBRARY, NEW DELHI.
CHICAGO.

Acc. No.

Date. B. 6. 27

ANCIENT EGYPT. Net price of each number from booksellers is 2s.

Subscriptions for the four quarterly parts, prepaid, post free, 7s., are received by Hon. Sec. "Ancient Egypt" (H. Petrie), University College, Gower Street, London, W.C. 1.

Books for review, papers offered for insertion, or news, should be addressed:—

Editor of "Ancient Egypt,"
University College, Gower Street, London, W.C. 1.

Subscriptions received in the United States by:—

Miss Helen Gardner, Art Institute, Michigan Boulevard,
Adams Street, Chicago, Ill.

ANCIENT EGYPT

1924. SEPTEMBER. PART III.

CONTENTS.



TUTONKHAMEN.

1. ORIGIN OF GREAT HALL, KARNAK.
R. ENGELBACH.
2. WHO WERE THE AMORITES?
PROF. A. H. SAYCE.
3. HISTORICAL VALUE OF NAMES.
FLINDERS PETRIE.
4. BRANCH ON PREHISTORIC BOATS.
DR. JEAN CAPART.
5. REVIEWS.
6. PERIODICALS.
7. NOTES AND NEWS.

EDITOR, PROF. SIR FLINDERS PETRIE, F.R.S., F.B.A.

YEARLY, 75. POST FREE.

QUARTERLY PART, 25.

BRITISH SCHOOL OF ARCHAEOLOGY IN EGYPT.
MACMILLAN AND CO., LONDON AND NEW YORK;

CENTRAL ARCHAEOLOGICAL
EGYPTIAN RESEARCH DEPARTMENT,

Acc. No.....CHICAGO.....

Date.....

Call No. Bk 27.....

ANCIENT EGYPT. Net price of each number from booksellers is 2s.

Subscriptions for the four quarterly parts, prepaid, post free, 7s., are received by Hon. Sec. "Ancient Egypt" (H. Petrie), University College, Gower Street, London, W.C. 1.

Books for review, papers offered for insertion, or news, should be addressed:—

Editor of "Ancient Egypt,"
University College, Gower Street, London, W.C. 1.

Subscriptions received in the United States by:—

Miss Helen Gardner, Art Institute, Michigan Boulevard,
Adams Street, Chicago, Ill.

ANCIENT EGYPT

1924. DECEMBER. PART IV.

CONTENTS.



SUMERIAN TYPE.

1. THE KING OF ALL THE NOBLES.
C. B. KLUNZINGER.
2. A TABLET WOVEN BAND.
G. M. CROWFOOT.
3. SETI I AT TELL NEBY MINDU.
G. LOUKIANOFF.
4. THE PALACE TITLES.
F. PETRIE.
5. THE CAUCASIAN ATLANTIS.
F. PETRIE.
6. REVIEW:
EARLY POTTERY. H. FRANKFORT.
7. NOTES AND LETTER.

EDITOR, PROF. SIR FLINDERS PETRIE, F.R.S., F.B.A.

YEARLY, 7s. POST FREE.

QUARTERLY PART, 2s.

BRITISH SCHOOL OF ARCHAEOLOGY IN EGYPT.
MACMILLAN AND CO., LONDON AND NEW YORK;

CENTRAL ARCHAEOLOGICAL
EGYPTIAN RESEARCH ACCOUNT,
LIBRARY, NEW YORK,
CHICAGO.

Acc. No.

Date.

Call No. Bl. 27

ANCIENT EGYPT. Net price of each number from booksellers is 2s.

Subscriptions for the four quarterly parts, prepaid, post free, 7s., are received by Hon. Sec. "Ancient Egypt" (H. Petrie), University College, Gower Street, London, W.C. 1.

Books for review, papers offered for insertion, or news, should be addressed:—

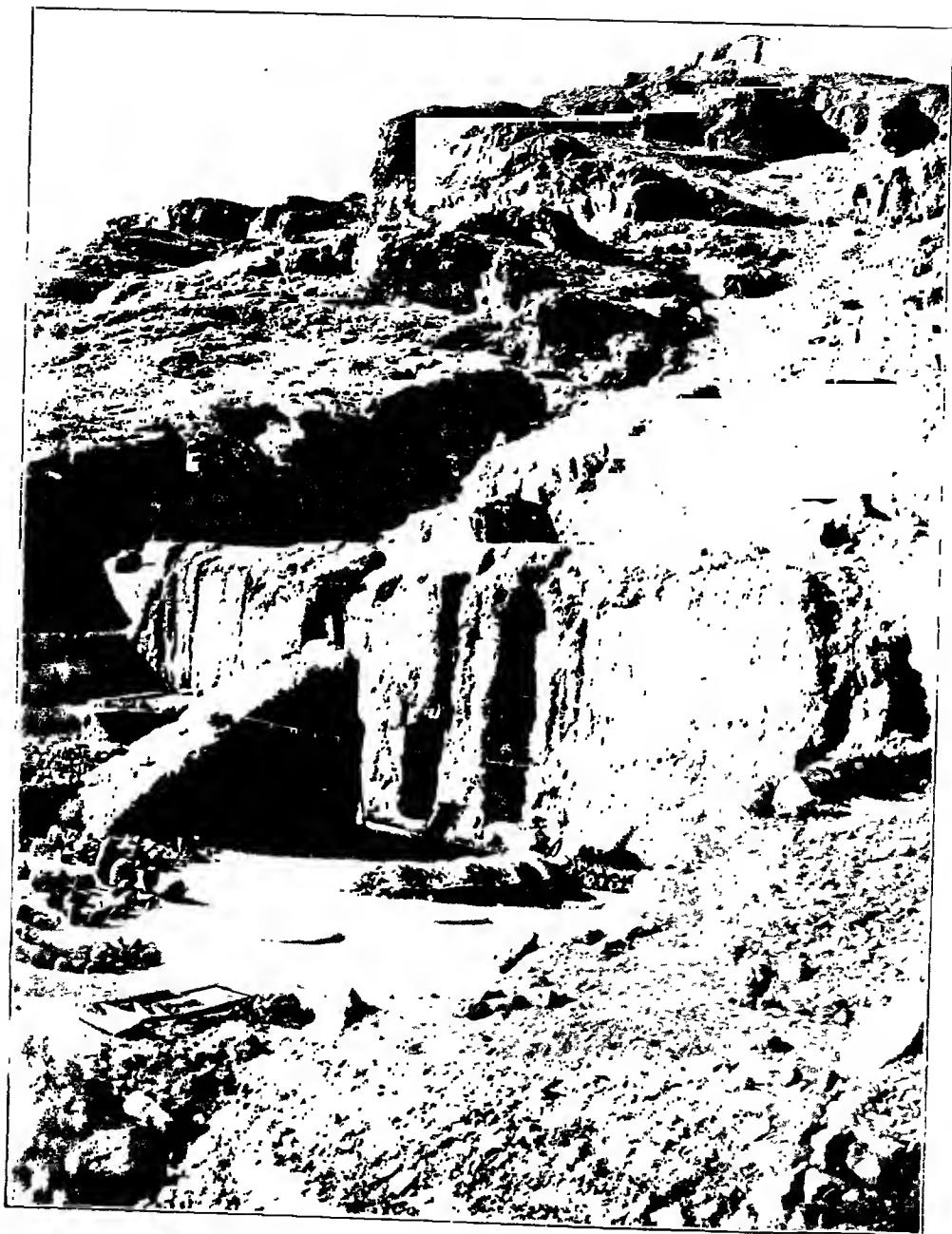
Editor of "Ancient Egypt,"

University College, Gower Street, London, W.C. 1.

Subscriptions received in the United States by:—

Miss Helen Gardner, Art Institute, Michigan Boulevard,

Adams Street, Chicago, Ill.



THE TOMB OF UAHKA, QAU EL KEBIR.

ANCIENT EGYPT.

THE ATLAS OF THE EMPIRE OF SARGON OF AKKAD.

THERE have been so many references to the geographical tablet of Sargon of Akkad (B.C. 2750), found at Assur, and its important bearing on the early history of bronze, that non-Assyriological students would, I believe, be glad to have a translation of it in their hands. The text has been published in *Keilschrifttexte aus Assur, verschiedenen Inhalts* (1920), No. 92. Only the obverse of the tablet has been preserved, and much of this has been injured or lost. Moreover, the text itself is a late Assyrian copy of an older Babylonian original, and was made by a pupil in "the school of the scribes" who was evidently learning the classical geography of the day, the result being that he has committed several mistakes in his copy, and in one passage has misplaced half a line. The original had been drawn up officially in the reign of the great Babylonian conqueror, Sargon I, and gave the mileage of the high roads of his empire in *b.r.i.*

1. "[Description] of the 17 high roads [of the kingdom] whose frontier is the country of Melukhkha.
2. [From the northern frontier, via] the Cedar-land (Mount Amanus) and the land of Khanû (now Dêr ez-Zôr on the Euphrates) ; 7 kings
3. [were conquered there :] to (the southern frontier) Anzanzan, the whole of it is his (*i.e.*, Sargon's) territory . . .
4. [The produce of the mines in] talents and the produce of the fields to Sargon
5. [has been brought] ; in the upper region is he lord, in the lower region is he lord of them.
6. [From the western road] on the bank of the Euphrates, the countries of Zubri and Mari
7. . . . [the country of] Yabusè, the country of Rapiqu,
8. [the kingdom ?] of . . . gan (?) the King of Assyria,
9. . . . the rivers Tigris and Euphrates,
10. [from . . .] khâ to Lubdi is the land of Arrapkha (Arrapachitis),
11. the high-road of the Upper and Lower Zab ;
12. from the city of Nakhuzibê is the land of Lullubî ;
13. from . . . to . . na . . . is the land of Armanî (the Aramaeans) ;
14. from the *kh* (?) *izzat* (watch tower ?) to the gate of Akkad,
15. from the gate to Khallaba is the land of Gutium (Kurdistan) ;
16. from Khallaba to the . . of the city Mi . . nî is the land of Riqqu ;
17. from Surpu (conflagration or rainy land ?) to the ford is the country of Dur-ili ;
18. from the ford to the Forecourt is the country of Lagas (Tello) ;
19. from the . . . to the sea are the men of . . umta ;
20. from . . pa to Mangizu is the land of Erim (the Sea-land) ;

21. from the *khisat* (embankment?) to the Euphrates is the country of [Ak]kad ;
 22. from Tigran of Gutium to Uzar of Ilulu is the land of Edamaruz ;
 23. from Uzar of Ilulu to Bit-Sin (Harran) is the land of Mari ;
 24. [from] Bit-Sin to Maskan-Sabri (Seat of the Steward) is the land of Malgi ;
 25. from the city of Sargon to the Water of [the U]lai is the land of Emutbalum ;
 26. from Bit- . . . ba to Rakhabut ;
 27. from Bit-DU-GAL to Eriyaba is [the land of] ;
 28. from Dhurgu to the Mountain River is the land of . . . bal.
 29. From the gate of Talbis¹ to the Plain (Padan-Aram) is the land of the Amorites², whose frontiers are Bit-Sin (Harran) and Sumer ;
 30. 120 *béri* is the length (of the road) from the storage-lake of the Euphrates to the frontier of Melukhkha and Bit-Sin (Harran),
 31. 32. which Sargon the king of the world, when he explored³ the land where the sky is low, a place of terror, measured as its high (*literally* broad) way.

33. 40 *béri* is the length of the road in the country of Markhasi (Mer'ash) ;
 34. 60 *béri* is its length in the country of Tugris ;
 35. 90 *béri* is its length in the country of Elam ;
 36. 180 *béri* is its length in the country of Akkad (northern Babylonia) ;
 37. 120 *béri* is its length in the country of Subartu (Mesopotamia) ;
 38. 120 *béri* is its length in the country of Tirzi (Direction) from Labnanu (Lebanon) to Turukkî.
 39. 90 *béri* is its length in the country of Lullubî ;
 40. 90 *béri* is its length in the country of Anzanzan.
 41. To the Tin-land (KUGA-KI) (and) Kaptara (Caphtor, Krete), countries beyond the Upper Sea (the Mediterranean),
 42. Dilmun (and) Maganna, countries beyond the Lower Sea (the Persian Gulf),
 43. and the countries from the rising to the setting of the sun
 44. which Sargon the . . king conquered with his hand,
 45. from Anzanzan to [Ma]rî, Zur . .⁴, Zur-sasum,
 46. Kullabi to Lulubê, Maganna,
 47. . . za, and the country of Uduñi 'the Frontier' (Mizir) as the name [he appointed]."

.

Melukhkha (1), "the Salt Desert," roughly corresponded to the Havilah of the Old Testament—that is to say, Northern Arabia.

Anzanzan (3), written Anzan in later documents, was southern Elam.

Zubri (6), written Supri and Subria in later texts, was on the eastern bank of the Euphrates, opposite Diarbekir. But perhaps the city of Supri, near Mari, but on the opposite (eastern) bank of the river, is meant.

Mari was the capital of Khana, and is now represented by Tell 'Ishôra, near Dêr ez-Zôr, on the western bank of the Euphrates.

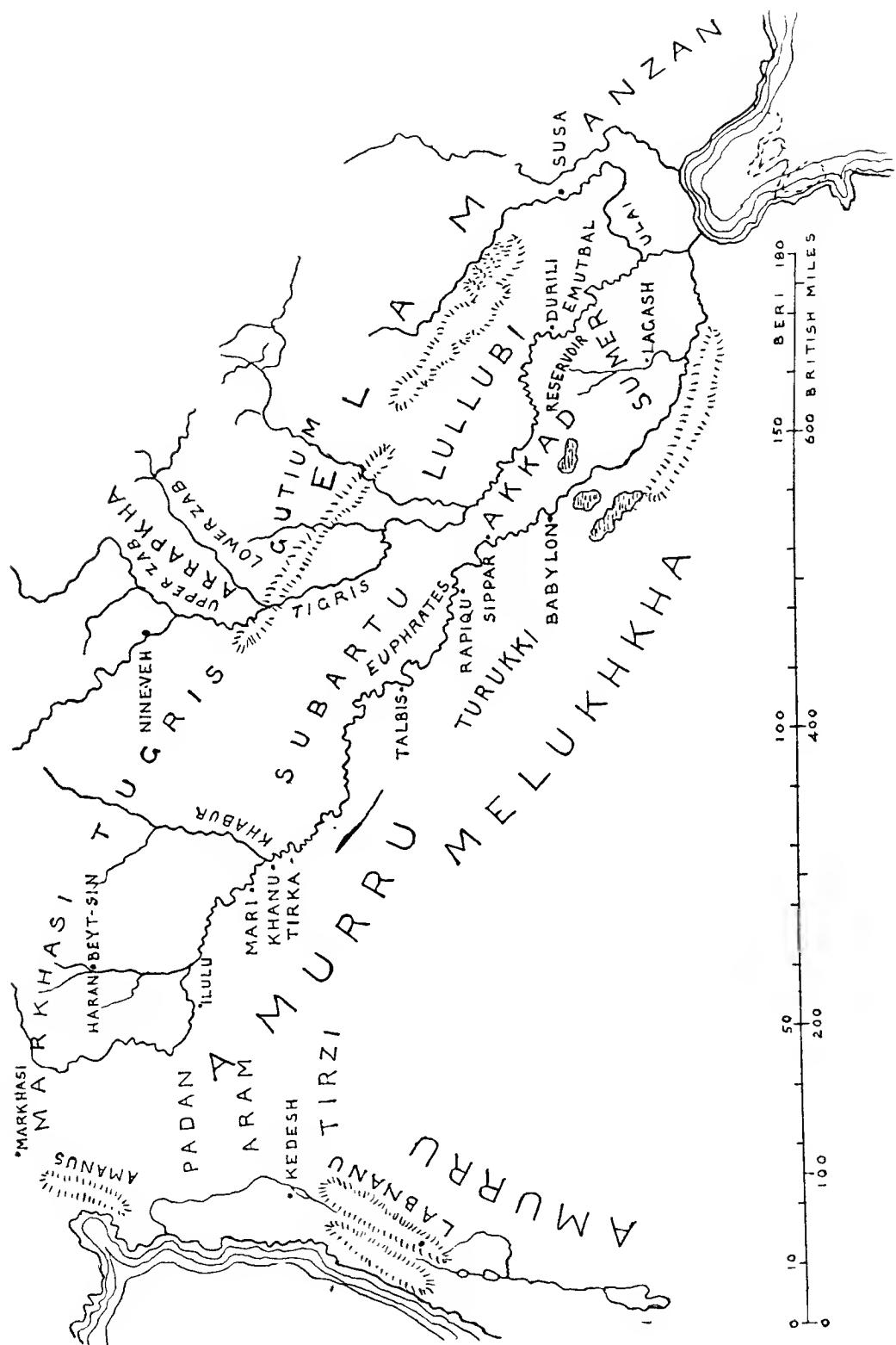
Rapiqu (7) was on the western bank of the Euphrates, south of Hit, and in a line westward of Bagdad.

¹ Talbesh. The scribe (or modern copyist?) has misread *sur* for *tal*.

² Read GIR-[GIR-KI] a synonym of "the Amorite land." Schröder reads *Gim-ti*, identifying the country with Ni-gim-khi which is coupled with Turukkî by the Assyrian king Hadad-nirari I. But the two names are obviously different.

³ Or "took the road to" (*iqlip*), used of military scouting.

⁴ Perhaps AMAR [-DA], Marad in Babylonia.



Lullubî, Lulubî (12), was on the eastern side of the Tigris, in the neighbourhood of Serpul.

Dur-ili (17) was also on the eastern side of the Tigris, but in Babylonian territory, and was known also as Dêr.

Erim (20) signified "enemy" in Sumerian, but in the early days of Sumerian history the chief enemy was the people of the Sea-coast ; hence the land of Erim became synonymous with "the Sea-land" (*W.A.I.*, v, 21, 43).

Talbis (29), now Talbes, was on an island of the Euphrates, a few miles south of Anah. The position assigned to the land of the Amorites is important, as it proves that it was identical with Mitanni, "the land of Midas." In Mitannian, Mitanni was called Murwu-khe, "the Murrian land" (the territorial suffix being that found in other Mitannian words—Kanis-kha, "the land of Kanis," Mukis-khe, "the land of Mukis," etc.), and consequently I am shown to have been right in maintaining that the name given to the Mitannians in the Hittite texts, which the German scholars read "Kharri," should be read "Murri." Mirrekh-nas, with the suffix *-nas*, "city of," is found in the Syrian geographical list of Thothmes III (No. 160), and Morrheus, "the Murrian," was a title of Sandes-Tarkus in Cilicia. The Amorites of the Egyptian monuments were a blonde people with blue eyes, and came from Asia Minor.

The storage-lake or reservoir of the Euphrates (30) is marked on an early Babylonian tourist's map as situated in what are now the marshes between the Shatt el-Hai and the Tigris (*see* my article in the *Expository Times*, November, 1906, pp. 68-73). In the map the reservoir is drawn like a bird's beak, and the city of Dur-ili is placed to the east of it.

The scribe must have omitted a line here, since Bit-Sin, "the Temple of the moon-god," was Harran, and had no connection with the land of Melukhha. Perhaps the original text had : "and . . . *b'ri* from Bit-Sin to the northern country is the length of the road." In the "Tourists' Map" the extreme north, beyond Lake Van, is described as a "place where the sun is not visible," and in the Legend of Sargon, the Cappadocian Taurus mountains are stated to be "a place where the wind sleeps and the rains descend."

Markhasi (33) must be Mer'ash, and not the Elamite city which bore the same name in the later texts, since in the early age of Babylonia the latter place was known as Barakhsî.

Tugris (34) was the country at the source of the Khabur, and seems to have extended eastward to the Tigris, which has a name curiously like it. The early Assyrian king, Samas-Ramman, associates "the kings of Tugris" with "the king of the Upper Country," or northern Syria (*Keilschrifttexte aus Assur*, I, p. 3).

Turukkî (38), we may gather from an inscription of the Assyrian King Hadad-nirari I, represented Beduin tribes on the western side of the Euphrates.

"The Tin-land" (41) "beyond the Mediterranean" must be Spain, and so bears testimony to maritime trade at this early period between Asia and the western basin of the Mediterranean. It is unfortunate that the loss of the text on the reverse of the tablet prevents our knowing what the exact construction of the sentence was ; but it would have been something like : "The road led towards the Tin-land" as well as other countries beyond the limits of the Babylonian empire.

The Babylonian city of Kullab, or Kullunu (Calneh), was the "lordship" of Lilla, the father of Gilgames.

Udunî (47) may be the Wedan of Ezekiel xxvii, 19, written Yadanana by Esar-haddon, who identifies it with Cyprus.

Mizir is the Babylonian word for "Frontier," and we may infer from this passage that its application in Babylonian to Egypt, whence the Assyrian Muzri and the Hebrew Mazor, Mizraim, originated in the fact that it constituted the frontier of Sargon's kingdom.

A. H. SAYCE.

In order to follow more clearly this important document, I have drawn the map here given, which has been reviewed by Professor Sayce, so that it represents his results so far as he identifies the places named by Sargon. The most interesting matter is the length of the various countries and roads named. As an approximation, I have given a scale of *b̄ri* as equivalent to four miles each; the more exact value is discussed below. This scale will enable us to see what regions must be covered by the distances named.

In the first place, Markhasi, Mer'ash, was celebrated as the frontier to the N.W., the place from which distances were counted. The frontier between Haran and Melukhkha (l. 30) cannot have been far from Ilulu, and the "reservoir" is marked on the ancient Babylonian map near the Shatt el-Hai, where there is evidently a long fall, past Lagash to the Euphrates. The distance between these agrees to 120 *b̄ri*.

In l. 33-35 there is a continuous line of road from the frontier to Susa. The 40 *b̄ri* of the land of Markhasi leads to rather east of Haran.

The 60 *b̄ri* of the land of Tugris leads on to the mouth of the Lower Zab, where it comes through the hills. The 90 *b̄ri* of Elam reaches to Susa. This distance, having cities at the end, both of which must have been included in the lands named, gives a *minimum* value for the *b̄ru*; it must have been rather longer by the winding of roads; and it might have included some of the lands beyond the cities. The distance must have been at least 760 miles, for 190 *b̄ri*, or just 4 miles for the *b̄ru*, and probably 5 *per cent.* more, or 4.2 miles. The *b̄ru* is the phonetic reading of the ideographs KAS-GIB or KAS-PU, and under the latter name it is well known in metrology. It is reckoned as $(3 \times 2 \times 5 \times 12 \times 30) = 10,800$ cubits. The Assyrian cubit of 21.6 yields 233,280 inches, or the Persian cubit of 21.4 yields 231,120 inches for the parasang, but the above distances show 4 miles, or 253,440 as a *minimum*, and probably at least 266,112 inches. This is distinctly longer, and the round numbers of the *b̄ri* cannot account for the difference, as it would require 20 *b̄ri* more added to the distances. It seems, therefore, that the *b̄ru* must have been longer. Taking the length of 21.6, the Assyrian cubit, 12,000 such would be 259,200, or 4.09 miles, which would be a possible length. There does not seem to be a better explanation.

In l. 36, 180 *b̄ri* through Akkad must start from the N.W. frontier at Markhasi. 120 *b̄ri* through Subartu must start similarly. The 120 *b̄ri* from Lebanon through Tirzi brings Turukki to the place marked. The 90 *b̄ri* through Lullubi seems to start from the Khabur, as Lullubi cannot extend south of Durili, where Emutbal begins. Lastly, there is 90 *b̄ri* in Anzan or Anzanzan, from Susa down the east side of the Persian Gulf.

The Tin-land connected with Crete in the Mediterranean (l. 41) is difficult to understand. Tin was certainly not known as a separate metal in the West as early as the reign of Sargon. The site of Ilulu, in l. 22, has been placed on the map at the city Alalis of Ptolemy, though it would rather be east of the Khabur river by the connections in l. 22, 23.

FLINDERS PETRIE.

EARLY COPPER AND ITS ALLOYS.

THE ordinary archaeological view of the greater age of bronze, in comparison with iron, has seemed a paradox hard to believe for me and other chemists and technologists.¹ Later modifications of that view have much reduced its difficulties. In the first place, metallic iron has been known for beads in prehistoric Egypt, though probably of meteoric origin, and never in common use as a characteristic of any period. Secondly, there has been a copper age preceding the use of bronze, in those countries where iron has followed bronze. Both of these results are illustrated in the Egyptian collection at University College, London.

In the prehistoric ages of North America, the large quantities of copper found there in a pure metallic state formed the material for tools and weapons, without any metallurgic or chemical process, and before the knowledge of any reduction of iron ores. Similarly in various parts of Europe, according to the statements of Much,² unalloyed copper has succeeded the use of stone, but probably reduced from sulphurous ores, or the oxidized products.

Even in Scandinavia, especially in Sweden, Montelius³ refers to several discoveries of prehistoric implements of pure copper; he considers that this copper age is the close of the stone age, and that the metal was imported by trade routes from Germany and Austria. In Denmark there are proofs of an early copper age, and routes led to there from the copper mines of Central Europe.

As far as we can see, Norway is an exception in this respect. It seems to be entirely without any trace of a copper age.

I have had the opportunity of analysing samples from the very oldest discoveries of bronze made in Norway,¹ among these that at Aurland in Sogn, also a quite interesting piece of copper-looking metal found in an old stone-age residence at Ruskeneset,⁴ near Fana, in Hordaland, but they were all real tin bronzes.

Possibly the cause of this may be that the western part of Norway, where these oldest bronzes were made, had its first communications abroad across the North Sea with Great Britain. Probably in those parts of England, where copper-ores with a content of tin have been worked, the bronze has been won by direct reduction, without fusing together the two component metals, quite in the same way as we have a lot of brass implements from antiquity, dating long before the zinc was discovered and isolated by Paracelsus in the sixteenth century.

I find support for this suggestion of mine in a remark by Mr. Coffey⁵ that "only when it has been shown that the local ores (from which it may be presumed that the copper was obtained) are free from tin, does it seem allowable to argue that the tin has been added."

¹ Cf. my paper in *Kristiania Videnskaps Selskaps Forhandlinger*, 1922.

² Much, *Die Kupferzeit in Europa*, 2nd Aufl., Jena, 1893.

³ *Svenska forunnenes foreningens Tidskrift* 18, Stockholm, 1891-93, pp. 203-238.

⁴ H. Shetelig, *Norske Oldfund*, III, Kristiania, 1920.

⁵ *A Guide to the Antiquities of the Bronze Age in the British Museum*, 2nd Ed., London, 1920, p. 5.

The prehistoric discoveries in Egypt and Mesopotamia are of peculiar interest in this respect. They seem to prove with certainty that in those countries, where the culture of the old world had its origin, pure copper, without any mixture of tin, is undoubtedly of greater age than the bronze.

The Cypriote copper, no doubt, is of a very great age. Some spearheads analysed in 1874, by Dr. Flight,¹ were shown to consist of almost pure copper—i.e., with a content of 97.2-99.5 per cent. copper—the small quantities of other metals (without a trace of tin) being considered as adventitious impurities.

Later on M. Berthelot, especially, has called attention to the fact, in his analyses of antiquities, that many prehistoric, supposedly bronze, implements were real copper. In 1889² he showed that a very old statuette from Tello, in Mesopotamia, now in the Museum of the Louvre, consists of pure copper.

Of no less importance is the analysis, made at the same time by Berthelot, of that interesting cylinder in the British Museum, which was formerly called the sceptre of Pepy I, because it is shaped as the handle of a baton, and is provided with inscriptions of this king of the VIth dynasty. It was first described by Longperrier,³ who suspected it to consist of bronze. Berthelot, who had got a small quantity of the substance for a chemical analysis, did not find any metal but copper, and a very dubious trace of lead.

This result may be doubted for several reasons. First, the quantity of substance that Berthelot disposed of was only 24 mgr., which is rather little for a complete analysis, especially as the substance was said to be oxidized. Moreover, there is a statue of King Pepy I in the Museum of Cairo which is certainly considered to consist of copper by both Maspero and Quibell. Nevertheless, an analysis made in 1907 of the material of this statue by Dr. Angelo Mossi, in Rome, showed that it was a real tin-bronze, containing 6.6 per cent. of tin. Meanwhile Dr. Hall, of the British Museum, kindly told me that there might be some doubt whether the fragment that has been analysed by Dr. Mossi was really a part of the said statue. Mr. Quibell confirms this in a letter to me, saying that most probably the analysis made by Dr. Mossi has no connection with the statue. We see that both the researches of Berthelot and of Mossi need to be renewed, but by reason of the archaeological value of the material there is no prospect of this being done.

Nevertheless, the odds are that Berthelot was right, and we may consider these two objects from the time of the VIth Egyptian dynasty to consist of pure copper. Certainly we have other analyses, both from Berthelot and from the late Dr. Gladstone, made on objects of about the same Egyptian age, or still older, which turned out to be real tin-bronzes;⁴ but on the other side there are a lot of analyses supporting the consideration of a copper age in early Egypt.

My desire to throw more light on this subject by increasing the supply of analyses has been kindly supported by British Egyptologists, to whom I am very much indebted for their indulgence: especially, Sir Flinders Petrie has been so very kind as to put at my disposal a large number of samples, mostly from the early Egyptian metal implements collected in his excavations of the old graves at Abydos, belonging to the Ist dynasty.

I got, in all, 29 samples drilled from the thick parts of tools, and most of them were brightly metallic, tough, flexible, and of a copper red colour. This was

¹ *Berichte d. deutschen chemischen Gesellschaft zu Berlin*, 1874, p. 1460.

² *Comptes rendus*, 1889.

³ *Comptes rendus*, 1875

⁴ Mentioned by Prof. Flinders Petrie, *ANCIENT EGYPT*, 1915, pp. 17-18.

especially the case with the samples 1 to 21, of which the composition is shown in Table I. They can practically be considered as consisting of pure metallic copper. None of them contained any tin, as they dissolved completely in nitric acid, with the exception of nos. 20 and 21, which left some sandy substance, but no stannic acid. The other metals, which we found present, are in such small quantities that we cannot consider that they were consciously put in as components of an alloy, but we have to consider them as accidental impurities due to the original ore. These accidental substances were mostly small quantities of iron, zinc or nickel, and once we found a trace of lead. Very often the samples contained arsenic, but never antimony. In some of these samples there seemed to be a very small and dubious trace of silver or bismuth, or both these metals. The solution of the metal in nitric acid gave, after dilution with water, a very weak white mistiness when hydrochloric acid was added, but the quantity was too small for further investigation. Most of the samples in Table I were, as already said, from the earliest dynastic times, but some of them were of later date, down to the XVIIIth dynasty: these, also, consisted of pure copper, without any tin.

TABLE I. BRIGHT METALLIC EXAMPLES, WITHOUT TIN.

No.	Object and date.	Reference.	Cu.	Fe.	Zn.	As.	Sn.	Ag. Bi.	Ni.	
1	Axe, clean, 1st dynasty	T.W., III, 101	97.99	...	...	...	...	...	...	...
2	Axe, green, 1st dynasty	T.W., III, 102	98.13	...	.25	tr.	...	...	...	...
3	Axe, 1st dynasty	T.W., III, 104	100.00	tr.	...	...	...	...	...	...
4	Axe, Zet, 1st dynasty	Abyd., 387	99.61	...	...	...	...	...	...	...
5	Adze, Zet, 1st dynasty	Abyd., 387	99.94	tr.	tr.	...	...	tr.	...	...
6	Chisel, Zet, 1st dynasty	Abyd., 387	98.71	...	...	...	...	tr.	...	...
7	Chisel, 1st dynasty	Abyd., 388	98.03	tr.	tr.	.25	...	tr.	...	...
8	Tip of knife, 1st dynasty	Abyd., 508	98.50	...	.25	.6	...	...	...	...
9	Adze, Onkh-ka, 1st dynasty	Abyd., 510	97.63	...	...	...	...	...	...	...
10	Axe, broken, 1st dynasty	Abyd., 601	97.22	...	.34	...	...	tr.	...	...
II	Axe, 1st dynasty	Abyd., 615	98.98	...	...	...	...	tr.	...	...
12	Adze, bird, 1st dynasty	Abyd., 640	97.69	tr.	...	...	...	...	...	...
13	Chisel, 1st dynasty	Abyd., 640	98.84	.63	.18	...	...	tr.	...	...
14	Axe, with lugs, 1st dynasty	Abyd., 654	98.30	...	...	...	...	...	...	...
15	Adze, 1st dynasty	Abyd., 712	99.60	...	...	...	...	tr.	...	...
16	Square bar, 1st dynasty	Abyd.	98.13	...	.15	...	...	...	...	...
17	Great adze, 1st dynasty	T.W., XVI, 66	97.01	.50	...	...	...	...	.43	S, .3.
18	Chisel, Khosekhennui, 1Ind dynasty	T.W., XXII, 49	97.70	.54	tr.	...	...	...	...	...
19	Adze, Abydos, VInd dynas- ty	...	98.00	tr.	tr.	tr.	...	...	Pb.	tr.
20	Mason's chisel, Kahun, XIInd dynasty	T.W., XXII, 78	97.63	1.18	...	...	...	...	...	1.4 sand
21	Heavy chisel, Ahmes, XVIIIth dynasty	T.W., XXII, 68	98.53	tr.	...	...	...	...	...	.3 sand

TABLE II. VERY RUSTY SAMPLES, WITHOUT TIN.

22	Curved bar, 1st dynasty	Abyd., 720	88.04	.14	...	...	...	...	...	7.96 sand.
23	Adze, very hard, 1st dynasty	Abyd., 420	94.21	2.5	...	...	...	...	...	.42 sand.
24	Adze, very hard, XXth dynasty(?)	T.W., XVII, 92...	57.97	...	...	...	...	...	...	20.0 sand.

TABLE III. SAMPLES CONTAINING TIN.

25	Syrian axe, XIIth dynasty	Abyd., 51	85.92	...	...	...	12.12	...	...	Pb .77.
26	Mason's chisel, inscribed	T.W., XXII, 80	93.57	...	...	.50	7.44	...	...	Sb. tr.
27	Adze, Gurob, XVIIIth dynasty	T.W., XVII, 85	89.82	...	.36	.25	3.05	...	...	Sb. tr.
28	Large chisel, XVIIIth dynasty	T.W., XXII, 89	88.02	...	.25	.43	11.96	...	...	Pb .10, Sb. tr.
29	Winged adze, XIXth dynasty	T.W., XVII, 93...	67.59	tr.	...	...	9.59	...	.60	...

T.W. refers to the plates in *Tools and Weapons* (Petrie) Catalogue of University College, in photographs. Abyd. refers to tomb numbers in *Tombs of the Courtiers* (Petrie) of the 1st dynasty at Abydos [in preparation]. In most of these analyses I was assisted by Mr. E. Soraas and Miss Nanna Isaachsen.

Three of the samples in Table I have been studied with X-ray spectrograms by Mr. Thomassen (see later on), with the following results, when the angles are referred to the line Cu β_1 .

No. 3. (T.W., III, 104.)

Lines.	Fe. K α .	Fe. K β .	Cu. K α .	Cu. K β .	Pb. L α . As. K α .	As. K β .
Measured	20° 6'	18° 10'	15° 52'	14° 17'	12° 1'
Calculated	20° 3'	18° 6'	15° 53'	14° 17'	12° 1'
Intensity	1	1	10	7	3

Besides the trace of iron, found by chemical analysis, some arsenic, and possibly small quantities of lead, are also found.

No. 16 (SQUARE BAR, ABYDOS).

Lines.	Fe. K α .	Mn. K β .	Fe. K β .	Ni. K α .	Cu. K α .	Zn. K α .	Cu. K β .	Pb. L α . As. K α .	As. K β .	Pb. L β . I β_2 .
Measured	... 20° 6'	19° 49'	18° 10'	17° 7'	15° 52'	14° 46'	14° 17'	12° 4'	10° 49'	10° 6'
Calculated	... 20° 3'	19° 45'	18° 6'	17° 6'	15° 53'	14° 46'	14° 17'	12° 1'	10° 46'	10° 1' 10° 2'
Intensity	... 1	~1	~1	1	10	1	7	2	~1	~1

The chemical analysis is here supplemented by a trace of manganese, some nickel and lead. The zinc is disregarded (see later on).

No. 8 (ABYDOS, 1ST DYNASTY, 508).

Lines.	Fe. K α .	Fe. K β .	Ni. K α .	Cu. K α .	Ni. K β .	Zn. K α .	Cu. K β .	Pb. L α . As. K α .	As. K β .	Pb. L β . I β_2 .
Measured	... 20° 6'	18° 10'	17° 8'	15° 53'	15° 23'	14° 46'	14° 17'	12° 4'	10° 46'	10° 3'
Calculated	... 20° 3'	18° 7'	17° 6'	15° 53'	15° 26'	14° 46'	14° 17'	12° 1'	10° 46'	10° 1' 10° 2'
Intensity	... 2	1	1	10	1	1	7	5	3	1

Besides the zinc, arsenic and trace of iron found by chemical analysis, the spectrogram shows, too, the presence of small quantities of lead.

The three samples of Table II differ from those in Table I only by their being more thoroughly attacked by atmosphere and water, so that they were very much oxidized and rusty, and the contents of copper had essentially decreased; but they, too, are without any tin, and originally they have consisted of pure copper, in accord with their great age.

The five samples of which we give the composition in Table III behave in quite another way. They all belong to a later age, and they all contain tin in such quantity that we have to consider them as *real bronzes*. It will be of some importance, too, that for three of these samples, among the accessory impurities we were able to show the presence not only of arsenic, but also of antimony. It may be that this appearance of antimony is owing to the presence of tin, but it may be just as probable that it is connected with the special origin of the copper ore. Other analysts have also shown the presence of antimony in Egyptian bronzes from the later dynasties. This is mentioned by Flinders Petrie,¹ and he is inclined to consider Central Europe, especially Hungary, as the motherland for those bronzes in Egypt. This would well accord with the appearance of

¹ In his paper on the metals in Egypt, ANCIENT EGYPT, 1915.

antimony (Fahlerz) in Hungary. In Bohemia and Saxony the same mineral appears, together with tin and copper ores. It would, then, seem probable that these bronzes are originally a European product, won directly from the ore, or else through fusing together the component metals, and that the completed alloy has been exported to Egypt.

Recently Sir Flinders Petrie drew my attention to the important source of antimony ores in Algiers. If these should really be considered as the origin of the antimony in Egyptian bronzes, we should be bound to assume its being intentionally put into the alloy, which I should think less probable in that time.

The oldest copper mines were, as is well known, in Sinai. Certainly the metal has been won there as early as the time of the Ist dynasty, and still earlier by the Semitic tribes living there, and brought from thence to Egypt. Later on, the Egyptians worked these mines themselves, and this continued till far into the XVIIIth dynasty, as certified by inscriptions on the rock walls of those times, where the copper is mentioned among the products which the military expeditions had to carry to Egypt. In an inscription as late as the time of Rameses III, of the XIXth dynasty (about 1034 B.C.), copper is not mentioned among the products from Arabia Petraea. We may, therefore, conclude that at that time the extraction of copper in this locality had stopped. At the same time we reach the end of the appearance of the pure copper implements, which were succeeded by real tin bronzes that have been imported from abroad.

The presence of arsenic, which we have found in most of the samples analysed by us, is in full accord with all accounts of the composition of the ores of Sinai. When, in 1822, Edv. Rüppel,¹ on the invitation of Mehemet Ali Pasha, made an investigation of those old mines, intending to work them again, he made on a small scale a reduction of a sample of the ore, and he mentioned that there appeared a strong smell of garlic, indicating the presence of arsenic.

It certainly should be of very great interest to get a complete analysis of the ore from Sinai. There might be some possibility of the accessory impurities of the ore showing some leading lines connecting the ore with the metallic implements originating from it. I made some endeavours to get a sample of that ore, but I regret that I have not succeeded, either through English or German museums or collections. Sir Flinders Petrie, however, has been kind enough to furnish me with a sample from the big heaps of slag of the old copper reduction found near Serabit, in Sinai. An analysis made in my laboratory of this slag gave 37.9 per cent. insoluble in acid, 21.65 per cent. copper, 37.95 per cent. lead, 1.9 per cent. iron, traces of nickel and cobalt, 0.45 per cent. arsenic, but no antimony, silver or bismuth.

I wanted to have a spectroscopic study of the sample, partly to have a control of our analysis, partly as a special investigation, to search for any rare metals, such as gallium or indium, that could serve as useful "leading" metals for the purpose mentioned above.

Professor V. M. Goldschmidt had the kindness to put at my disposal the X-ray spectrograph of the Mineralogical Institute of the University at Kristiania, and Mr. L. Thomassen has been kind enough to make some spectrograms for me of this sample, as also of some others mentioned in this paper. The result of the spectrographic research of the Sinai slag is given in Table IV, referring to the line Cu. β .

¹ *Reise in Nubien, Kordofan und das petrasche Arabien*, Frankfurt, 1829.

TABLE IV.

Metal.	Pb.	As.	Pb.	Fe.	Fe.	Pb.	Cu.	Cu.	Pb.	As.	Pb.	Pb.
Line.	2 La.	2 Ka.	2 L β .	2 L β .	Ka.	K β .	2 L γ .	Ka.	K β .	La.	Ka.	1. β .
Angle—												
Measured ...	24° 37'		20° 33'	20° 4'	18° 8'	17° 16'	15° 52'	14° 17'		12° 1'		10° 3'
Calculated ...	24° 37'	24° 37'	20° 22'	20° 24'	20° 3'	18° 7'	17° 18'	15° 53'	14° 17'	12° 1'	12° 1'	10° 1'
Intensity ...	1		2	3	1	1	10	6	5			4

We see that the spectrographic analysis has brought forward the presence of no rare metals; taken all together, it confirms the ordinary chemical analysis, with exception of the traces of nickel and cobalt, which may be due to the heterogeneous nature of the material.

If we compare the composition of this Sinai-slag with the composition of the old implements of which we have made the analyses, we see a general accordance, as we have found small quantities of iron, arsenic and nickel in several of the implements: even a trace of lead we have found once by chemical analysis, and three times by X-ray spectrographic method (*cf. above*). We may well assume that the lead which has been present in the original ore, as an essential component, has mostly passed into the slag, and this may be assumed also for the cobalt, which certainly has only been a mere trace. With regard to the zinc which we sometimes found in the analysed objects, it was mostly in small quantities. On the other hand, Mr. Thomassen reports to us that X-ray spectrograms mostly show some lines for zinc, but they are not of much account, because they arise from small impurities of zinc contained in the copper of the anticathode, or they are due to a secondary radiance belonging to the brass mounting of the X-ray tube. On the other side we are inclined to lay some stress on the complete absence in the slag of any trace of silver or bismuth, of which we found some small traces in some of the analysed objects. Probably we here have an indication that already in those early times, when the unalloyed copper was commonly used in Egypt, the inhabitants got their copper not only from Sinai, but also from other parts of the world. The bismuth has, like the arsenic, a hardening influence upon the copper, and there are other analyses that show a content of bismuth up to 1 per cent. in the copper objects of the 1st dynasty. It is not very probable that those small quantities of arsenic or bismuth have been purposely put into the metal. We should rather think of them as accidental impurities, present in an original ore containing the said metals. It may be that we have to seek this ore in Cyprus, but it may be possible that it belongs to some other part of Europe or to Asia.

We now turn to mention some analyses of objects that we have got from Mesopotamia.

In the Ny-Carlsberg Glyptothek, Copenhagen, there is an old Sumerian statuette of about 3000 B.C., about the age of the old Egyptian copper objects mentioned above. This statuette consists of elaeolite, and has been described by Dr. Fredr. Poulsen, in the Danish Journal, *Tilskueren*.¹

The head of the figure has been broken off, but has been put on again, and the break mended by a cement. But besides this restoration of a later age, there are placed round about in the head a lot of metal nails, mostly green and rusty. These, according to Dr. Poulsen, have nothing to do with the relatively modern

application of cement, but he assumes that the statuette was splintered already in the old Sumerian age, and joined with the metallic nails. Dr. Poulsen was inclined to assume these nails to consist of copper, according to the analyses M. Berthelot had made of several antiquities belonging to the early Chaldean Age.¹ Dr. Poulsen had the kindness to put at my disposal one of these nails to try if his opinion was right or not.

Besides the nail itself, which was very rusty and green, but nevertheless mostly of metallic nature, I received a sample of some green patina-powder, wrapped up in a separate paper. It weighed 59.4 mgr., to which we added more patina scraped off from the nail, so that we had altogether 0.0852 gr. rusty patina powder.

For a first test this powder was treated with nitric acid, by which was left a rather considerable insoluble residue, which we supposed to be stannic acid. Further research on the insoluble part showed, however, that it all consisted of sandy particles, and there was no trace of stannic acid in it. The solution in the nitric acid contained, calculated in percentage of the patina, 67.02 per cent. copper, 2.50 per cent. iron, and only a trace of nickel, but no lead, silver, bismuth or zinc.

The opinion that the nail only consisted of copper without tin, for a moment had been put in doubt, but was quickly confirmed. We now took on the main analysis of the nail. It had a total weight of about 1.31 gr., and was cut in two parts, the one, A, weighing 0.608 gr., the other, B, weighing 0.7075 gr.

The piece A we tried to clean as much as possible by putting it for a very few moments in rather diluted hydrochloric acid, and afterwards washed it with distilled water and with alcohol. Then we tried to remove the remaining rusty spots with emery cloth, after which it was washed with water and alcohol, and perfectly dried. It had now a weight of 0.5765 gr. But, nevertheless, we did not succeed in getting a quite pure metallic and spotless surface. There was still remaining some rusty substance, which we did not dare to take away by more effective treatment with acid, for fear of losing small traces of tin that possibly might be present in the metal. The analysis was performed in the ordinary way by dissolving the substance in nitric acid. Even here there was some insoluble residue, which, however, appeared as light flocculents and flakes consisting of sulphur. The continued treatment with nitric acid mostly brought it all in solution, with exception of a very small quantity. This, however, did not contain any tin, the weight of it was 0.0019 gr., and it consisted mostly of some sandy matter with a trace of sulphate of lead.

The analysis of the solution gave 0.23 per cent. sulphur, 95.07 per cent. copper, 0.86 per cent. iron, 0.28 per cent. nickel, calculated upon the metal; no trace of bismuth, silver, zinc, or cobalt was found.

The piece B weighed 0.7075 gr. We first intended to take it for a special research for arsenic and antimony, and a controlling research for tin, by the method of Hartman,² which we have modified for our purpose, and used in the analyses of the Egyptian objects mentioned above. On further consideration, however, we found that it would be of still more interest to get an X-ray spectrogram of this substance. Mr. Thomassen had the kindness to make such an one

¹ *L'age du cuivre en Chaldée. Comptes rendus*, 1897, p. 328. *Sur quelques objets en cuivre, de date très-ancienne, provenant des fouilles de M. de Sarzec en Chaldée.* 1893, p. 161.

² *Zeitschrift für analytische Chemie*, 58, p. 148.

for us, and he gives the report of it included in the Table V, with the angles referred to the line $\text{Cu.}\beta$.

TABLE V.

Metallic Lines.	Fe. K _α .	Co. K _α .	Fe. K _β .	Ni. K _α .	Cu. K _α .	Ni. K _β .	Zn. K _α .	Cu. K _β .	Pb. L _α As. K _α .	As. K _β .	Pb. L _β . L _β ₂
Angles—											
Measured ...	20° 3'	18° 28'	18° 7'	17° 3'	15° 52'	15° 26'	14° 46'	14° 17'	12° 4'	10° 49'	10° 3'
Calculated ...	20° 3'	18° 28'	18° 6'	17° 6'	15° 53'	15° 26'	14° 46'	14° 17'	12° 1'	10° 46'	10° 1'
Intensity ...	6	1	3	2	10	—1	—1	6	3	2	1

Setting the zinc line aside (as before), we have here got a confirmation of our finding iron, nickel and lead, besides the copper; further, the spectrogram shows the presence of cobalt and arsenic.

Regarding tin, the spectrographic method is not usually able to give any account, but the ordinary chemical research has convinced us fully as to the absence of tin, so that we really consider the metallic nail consisting of practically pure copper, and not bronze.

In later times we find implements of real bronze in Mesopotamia, as in other countries where the bronze age has succeeded the copper age.

A most interesting object of bronze we find in the famous bronze bands from the gates of the palace of King Shalmaneser II, which are in the British Museum. Through the kindness of Sir Ernest Wallis Budge, I was happy enough to get for analysis a fragment of these bands. It was a rather big piece, weighing about 15 gr. It was very rusty, and pierced by a big nail, presumably also of bronze. A preliminary analysis of the rusty substance showed the contents of 70.78 per cent. copper, 6.74 per cent. tin, 0.24 per cent. lead, the proportion between copper and tin being as 100 : 9.55. As a cleaning of the rusty metal, through treatment with acid, was quite excluded, we made a reduction of a part of the substance by heating it in a current of hydrogen. Hereby it lost 12.55 per cent. in weight, consisting of moisture, oxygen, carbonic dioxide, etc., and the analysis of the reduced metal now showed its composition: 90.0 per cent. copper, 8.75 per cent. tin (average of 8.88 and 8.63 per cent.), 0.41 per cent. lead, traces of iron, but no nickel, cobalt, zinc, silver or bismuth. In another sample analysed by the method of Hartman, slightly modified (see above), we found 0.12 per cent. arsenic, but no antimony.

The X-ray spectrogram, according to Mr. Thomassen, shows:—

Metals.	Fe. K _α .	Co. K _α .	Fe. K _β .	Ni. K _α .	Cu. K _α .	(Zn.) K _α .	Cu. K _β .	Pb. As. L _α . K _α .	Pb. L _β .	Pb. L _β ₂ .	
Lines.											
Angles—											
Found	20° 6'	18° 31'	18° 7'	17° 6'	15° 52'	14° 43'	14° 17'	12° 4'	12° 4'
Calculated	20° 3'	18° 28'	18° 6'	17° 6'	15° 53'	14° 46'	14° 17'	12° 1'	12° 1'
Intensity	3	1	1	1	10	1	6	1	—1

If we put out of account the lines of zinc, the spectrogram, on the whole, gives a confirmation of the chemical analysis, with exception of the small quantities of nickel and cobalt, which our analysis had overlooked.

The metal in the said bronze bands from the Assyrian palace of about 850 B.C. no doubt is a real tin bronze of normal composition, similar to the bronze in the statues.

Regarding the question of the origin of the copper in the old copper and bronze objects of Mesopotamia, there is really no difficulty in assuming that it came from Sinai. According to Hilprecht,¹ several of the old metallic objects found in the ruins of Nippur and surrounding places have come from the country called Kimash (*i.e.*, Central Arabia, now Djebel-Shammar), or from Melukh (*i.e.*, Northwest Arabia, up to Sinai). The intensive commercial connection existing between these parts of Arabia and the ancient Babylonia was confirmed about 2800 B.C. by the old priest-prince of Lagash, who reports, "from Kimash I get copper, and from the mountains of Melekh I get iron and gold."

But no doubt other copper sources were of importance for those old people of Mesopotamia. There are said to be several copper mines in the upper part of the Tigris, and near Pontus. My efforts to get some sample of copper ore from these countries were kindly met by the Prussian Geological Research, which sent me a sample of copper ore from an old mine near Arghana-Maden, in Kurdistan. It is said that the mine was worked in prehistoric times, and, from the antiquities found, it is concluded that the old Assyrians worked there. Moreover, it is said that even at the present time there is a small colony there of Greek miners, whose ancestors immigrated in early Hellenic times.

According to analyses made of this ore by the Prussian Geological Research, it contains from 3-12 per cent. of copper, mostly in the form of pyrites, as there is found also 33-42 per cent. of iron, and 20-35 per cent. of sulphur. Of other metals there are only traces of zinc, lead, and arsenic, and silicates of alumina, lime, and magnesia.

An X-ray spectrogram, made by Mr. Thomassen, is shown in the following table:—

Metal.	Mn.	Fe.	Mn.	Co.	Fe.	Co.	Cu.	Zn.	Cu.	Pb.	As.
Lines.	K α .	K α .	K β .	K α .	K β .	K β .	K α .	K α .	K β .	L α .	K α .
Angles— Found	... 20° 51'	20° 6'	19° 48'	18° 28'	18° 8'	16° 39'	15° 52'	14° 46'	14° 17'	12° 4'	
Calculated	... 20° 31'	20° 3'	19° 45'	18° 28'	18° 6'	16° 39'	15° 53'	14° 46'	14° 17'	12° 1'	12° 1'
Intensity	...	2	8	1	3	5	1	10	1	7	1

For this instance the presence of zinc, as of lead and arsenic, is confirmed by the ordinary chemical analysis. Moreover, the spectrogram shows appreciable quantities of cobalt, and small quantities of manganese, but neither nickel nor antimony.

It might seem tempting to seek a connection between the cobalt found in this ore and the cobalt contained in the two Mesopotamian metal objects mentioned above, but we must resist this, because we could not account for the presence of the nickel, which must have been derived from the original ore. We may assume

¹ O. Helm: *Chemische Untersuchung von altbabylonischen kupfer- und Bronzegegenständen*, Verhandl. der Berliner Gesellsch. für Anthropologie, etc., 1901, pp. 157-164.

the connection between the Sinai ore and most of the ancient Egyptian copper objects, but it must be left to future investigations to detect the travels of the copper that was won out of the Kurdistan mine, and the origin of the copper in the Sumerian copper nails, as also of the copper in King Shalmaneser's bronze gates. We can only say that these objects certainly have no connection with the Kurdistan ore.

JOHN SEBELIEN,

Professor of Chemistry.

AAS, NORWAY.

[This paper was communicated to the section of Anthropology of the British Association at Liverpool, 18 September, 1923.]

NOTES ON THE LAW OF ANTIQUITIES.

As the public cannot be expected to be familiar with the law on excavations in Egypt, it may be well, in view of recent events, to state the legal rights of excavators. Every holder of a permission must work the site granted to him during two months of each year, or else he forfeits his right of renewal for that site. Thus he has a right of holding a site year by year, so long as he obeys the law. Further, after two months in any season he may cease work, without forfeiting any of his rights of continuance. All publication is entirely in the hands of the excavator, so much so that after objects have been four years in the Cairo Museum unpublished, still no one is allowed to publish them without the excavator's permission. No person but the excavator has any right to view, or interfere with, the excavations or objects found, except the officials of the Department of Antiquities. Any other visit is solely at the discretion of the excavator. Such is the law and has been the custom during the last forty years.

THE BRITISH SCHOOL IN EGYPT.

EXCAVATIONS AT QAU.

THE work which has been resumed this year at Qau has many kinds of interest, and, though it is not yet finished, we can already gain some view of the results. The questions that were pending about the great deposit of bones have been mostly cleared up. Another large deposit has been found containing specimens of all ages. There are the black and heavy bones, solid with lime and iron, and greatly rolled ; the less altered bones which were washed out of local deposits and not rolled ; the bones deposited fresh in the gravels, and little changed ; lastly, the recent bones which the Egyptian piously buried along with those which



LARGE HOES OF CHLR. PROTODYNASTIC, QAU.

he collected. By gathering the pebbles and sand found embedded in the cavities of the bones, we are able to identify the stratum in which they were deposited some 20,000 years ago. This gravel of igneous rocks has now been traced in various places in the wide bay of Qau, though we have not yet recovered the site where the Egyptians obtained the bones.

The purpose of the ancient collection of such remains is illustrated by finding them placed in each of the great tombs here. They were almost entirely the bones of the sacred animal of the district—the hippopotamus—and hence were collected and buried like those of other sacred animals ; they were also placed in

the tombs to sanctify the burials—an early use of relics. Some more of the human bones have been found, parts of jaws, pieces of skulls, and limbs. From the extremely rolled state of a large proportion of the bones, it seems that their original site must have been near the Red Sea mountains, and that they travelled a long course in torrent beds down to the Nile.

Another site of the early rippled pottery has been found, and we have obtained some material which will show its relation to known periods. Of the historic times we have recovered an alabaster vase of the IIInd dynasty, a great altar of granite of archaic type for the prince of Qau named Herui-nekht, alabaster vases of the Vth and VIth dynasties, groups of the amulets of that age and rather later, and many kohl pots of the XIIth to XVIIIth dynasties.

The frontispiece shows the position of the great tomb of the Prince Uahka of the IXth or Xth dynasty, with the cliff rising more than three hundred feet above it. In front is a wide terrace, which had a colonnade around it, and a sloping ascent to the tomb. The back of this court has three doorways, leading into a store chamber in the rock, fifty-seven feet long, which we divided into living rooms. The ascent was by steps up to the portico of two rows of columns, before the hall of pillars. Beyond that the rock contains the great hall, fifty-two feet long and thirty-one feet wide, hewn without any pillars.

An important part of the work this season is the complete copying of the remaining portions of the painted scenes in this tomb. Most of the painting has never been seen in modern times, being incrusted with dirt. By careful cleaning in various ways, much of it can be recovered, and the figures and inscriptions traced. The style, though based on that of the Old Kingdom, has many strange differences and surprising details. The whole work was magnificent—the rock-cutting of the great halls, and the delicate detail of the painting which covered the walls. There were originally about sixteen hundred square feet of painting in the great hall, and the ceiling, twenty feet from the ground, was covered with designs of mat-work, of which a dozen different patterns have been copied. The Greek design of palmetto and spirals is here carried back thousands of years. The whole place underwent miserable wreckage, but the remaining fragments give a high idea of the splendour of the southern kingdom in the Herakleopolitan age. The princes here seem to have held the country up to Aswan, and to have been the ancestors of the XIIth dynasty. Among the small objects, there are many more scarabs of the IXth dynasty period, and amulets rather older. A great variety of pottery, mostly belonging to the late Hyksos age, has been drawn.

Further north, the cemetery of Hamamieh has been finished, and Mr. Brunton's work now covers several cemeteries stretching about five miles farther to the north. The most important result is finding the remains of a brick temple, which appears to have been founded in the prehistoric age, and to have been rebuilt in the Old and Middle Kingdoms. A fine hawk figure of prehistoric work suggests that more of the sacred objects were there originally. Much of the prehistoric age, and early dynasties, lay hidden until now beneath the surface, which appeared to be entirely native desert; the ground was found to have been riddled with deep tombs, completely overlaid by later deposit.

FLINDERS PETRIE.

ASSYRIAN AND HITTITE SOCIETY.

WE all remember the great interest which was excited some twenty years ago by the publication of the Code of Laws of Khammurabi. Lately two works have appeared which cannot rival the Babylonian Code in completeness, but which have provided over seventy Assyrian laws and nearly two hundred Hittite laws from fragmentary clay tablets of the codes. Père Scheil published the *Recueil de Lois Assyriennes* in 1921 ; a far greater triumph is Dr. Hrozny's wrestling with the scarcely-known Hittite language to restore the code, which, with assistance of the Czechoslovak government, has been issued as *Code Hittite* in 1922.

The value of law as a picture of society was illustrated in *Some Sources of Human History*, by comparing the codes of Khammurusbi, of India, and of Wales. The recent publications enable us now to compare together the laws of Babylonia in 2100 B.C., of Assyria in 1400-1200 B.C., and of the Hittites in 1300-1200 B.C. In regions so closely connected the resemblances and differences are of more precise interest than elsewhere. These comparisons are outlined in the present article, without at all exhausting the subject. For the preliminary settlement of prices, we also refer here to the obelisk of Manishtusu, father of Naram-Sin, about 2800 B.C. The laws of these countries have, moreover, another interest. The Hebrew origins in Babylonia—Ur of the Chaldees—and their racial connection with the Hittite type (pointed out by Dr. Salaman), show these laws to be the forerunners of the Hebrew legislation : it is in starting from such sources that we should study the changes found in the Pentateuch.

Before we can understand the penalties of the laws we must have some scale of values, as between labour, food, and current metals. The value of corn in 2800 B.C. was 1 shekel of silver per quarter. In 2100 a shepherd has 8, or an oxherd 6 quarters a year, and day labourers 5 to 6 shekels a year (by the day) ; so the price of corn remained about constant. If we take the prices before the Napoleonic wars, and again at the end of the last century, free of economic disturbance, wheat in England was worth 10 ozs. of silver for a quarter. Silver, therefore, was worth about 40 times its modern value in corn. At the present price of silver, the shekel of silver would be equal to 30s. now, and a century ago equal to 50s. We may here call it £2, to get a rough valuation. There are no corn values in the later codes.

Next, taking labour, in 2800 the slave cost 20 shekels (hereafter marked as S.). In 2100 the slave was 20 S., and compensation for a free man's life 30 or 60 S. The Hittite slave was from 10 to 25 S. The Hebrew valuation was 30 S. for a slave (*Exodus xxi, 32*), and 50 for a free man (*Leviticus xxvii, 3* ; *2 Kings xv, 20*). These rates are curiously uniform, and show that there was no serious change in values for 2,000 years. The hire of labour in 2100 was at 5 to 6 S. yearly, and among the Hittites 12 S. yearly. This would be in corn values about 5 to 10 shillings a week, just the range of Egyptian wages in recent times. The life value for a lower class man being about 40 to 50 S., and yearly pay 6 S., the life was reckoned about 7 or 8 years' labour. The price of a slave was only 3 or 4 years' labour, or 2 years' among the Hittites.

The Assyrian had no silver standard, but valued everything in a weight of lead. There are mentioned : a servant (high-class slave) at 4 talents ; the compensation for seduction of a wife, her price $3\frac{1}{2}$ talents ; the penalty for abortion, 2 talents. These give, in comparison with other countries, 5 S., 8 S., or 5 S. for a talent, which would be equal to about £12 at present, or 3s. 6d. per lb. for lead. This is about 12 times present value, while silver was 40 or 50 times the present corn value.

The laws about animals open severely in 2100 with the penalty of death for all robbery. The Assyrian fine for stealing animals was $\frac{1}{2}$ talent (or less), 50 blows, and a turn of corvée work. The Hittite had evidently much experience of cattle stealing, and had graded his laws minutely. For stealing a bull or a great horse or ram he had to give formerly 30, and later 15 such animals, of various ages from half a year to two years of age ; for a plough ox he was fined 15, reduced to 10 oxen ; for a cow, mare or sheep, 12, reduced to 6 animals. For stealing a common ox, horse, mule or ass, he paid double. For a fat pig or a goose the reduced penalty was 12 shekels, half the value of a slave ; but less for young animals. The treatment of animals will be noticed after crimes of violence. Though the Hittite had many laws about stealing, he had scarcely any about dealing in stolen goods, such as Khammurabi lays down. Clearly the risk was cattle lifting to other estates, and not theft for sale.

The land laws in Babylonia, 2100 b.c., deal almost entirely with rented land, usually dividing the cost and produce between landlord and tenant. The holder was therefore bound to cultivate, and was responsible for all damage done to other lands by bursting of canals. In Assyria there is no trace of tenancy, and little among the Hittites, who only say that if A cultivates the land of B, and C take it from A, C may not cultivate it. The law in Assyria was mainly to check land grabbing. For shifting a boundary, the trespasser had to set back triple, a finger was cut, 50 blows given, and a month spent in the corvée. Shifting a water channel was a worse offence, and there was also a fine of a talent of lead and the beating was doubled. The Hittite was concerned about thefts by men employed in irrigation. If the man belonged to a corporation or Union, the whole body was responsible ; but if a gang of men all stole, they were to be sent to prison. The laws had been let down : formerly if a man ploughed up another's crop and sowed differently, he was killed ; but later he could be redeemed by a sheep, two sheep for his oxen, and a feast of loaves and beer. This law seems to show that they had the common-field system, so that there were no boundaries to fix rights in land.

Connected with the land, Babylonia had the system of fiefs, or tenure of land on condition of military service. The field, garden, and house of a feoffee could not be sold or assigned for debt, or bartered away ; only such holdings as were bought could be dealt with. If the holder was absent, or neglected his tenure for three years, it was forfeit ; but if away on duty, his son might manage it, if old enough. The fief could not be parted with to ransom the holder, if captured : his ransom must come from his own property, or the temple of his city, or, lastly, from the palace. There is no mention of fiefs in the remaining laws of Assyria. The Hittites had military fiefs well established. The service went with the land, however acquired from the original feoffee. A small field or holding did not matter, but any large fief was compulsory, unless it were a clear gift from the king, in which case it carried the right of maintenance from royal supplies. If the feoffee and his lieutenant quarrelled, the holding, men and supplies were divided as $\frac{2}{3}$ and $\frac{1}{3}$.

Many troops did no field service, as those of Manda, Sala, Tamalki, Khatra, Zalpa, Tashkhinia, Khemura, the archers, carvers, stable pages and men. But the men of Khattushash came to the king and claimed to be feoffees, and he told them to go and work their fiefs. The obligation to garrison-duty in expeditions, and levy for vintage, fell on smiths, and gardeners had to do all the field service. These details help to explain the military system of the Hittites.

The right to a field seems to have been accompanied by a religious service to consecrate the bounds, among the Hittites, like the Roman worship of Terminus at the boundary stones of all estates. A crop was cut off a given area of the land, and given to the priest, with a sheep, 10 loaves, and a jar of beer. This may be the act at the first enclosure of open land. On acquiring cultivated land, the new owner consecrated the bounds by offering fine flour to the sun goddess or the god Teshapash, and saying "my tree in the land thou hast planted."

Magic was strictly forbidden. In 2100 anyone weaving a spell and putting a ban on a man, without justification, was to be killed. Perhaps it might be done in self-defence. If an enchantment was put on a man, he had to plunge into the river, and unless he were drowned he could put the enchanter to death, and take his house. It seems to have been a sort of duel by ordeal of drowning. In Assyria, a man or woman practising magic was (after due proof) to be killed. Among the Hittites, a free man killing a serpent and naming another man, apparently to injure him, had to pay 60 shekels, or if a slave did so he was killed.

Marriage property and family laws naturally occupy a large space. Under Hammurabi (2100) the portion of a wife (from her father) is entirely for her children after her death. If she had no children, then her dower (from her husband) and her portion are each returned to the respective sources. Children of a second marriage divided the paternal house equally with the others, but the portion of each mother went to the respective children. If a widow had no fixed settlement, she held her portion, and shared like a son in the husband's property. A widow whose children were young could not re-marry without a judge's assent, and the whole of the first husband's property was tied by deed to the children and could not be sold. Gifts during a father's life did not enter into the sharing by his sons. A wife without marriage deeds had no rights.

The Assyrian provided for many cases. If a woman married without any deeds she was only bound after two years; before that it seems as if she could withdraw. Women seem to have often lived in their father's house after marriage; there are many references to such a position. A husband living in his father-in-law's house, if his wife dies, has the right to another daughter on the same dower. There is also a law dealing with the complication of a man marrying his brother's widow while he was already engaged to someone else, the dower being already paid over. Also if a woman lives with her father, even if she has never gone to her husband's house, yet she shares in all his expenses. When living with her father, she is supported by her husband, and she has no right to use the paternal property.

Widows were under very varying conditions. The dower of a widow, and any property from her father, was the property of her sons to divide. If she had no children it was hers altogether. If she still lived in her father's house, and had no children, the husband's brothers had claim on the dower. If the widow's father were dead, and she had no children, she could do as she liked. If she re-married, all her property became joint holding with that of her second husband. The sons by a first husband have no claim on a second husband. A wife abandoned for over five years, in her father's house, and childless, may re-marry. If a wife living with

her father is repudiated, the husband takes back his dower, but his gifts to her father remain. A repudiated wife has no claim on her husband. Khammurabi, however, ruled that 60 shekels of silver must be given if there was no portion to be returned.

The Hittite had few regulations about marriage property. If a wife died in her own house, the husband kept the dowry ; if in her father's house, the husband returned the dowry.

Affiance seems to have been a long and important period. The many references above to the wife living in her father's house shows that marriage did not make an inevitable break ; this agrees with it being less marked, and affiance being legally regulated. The Babylonian merely stated that presents to the girl's father, or a dower given, cannot be reclaimed if the man changes his mind ; but they must be returned if the father refuses to give the girl. The Assyrian law was more detailed. In no case could there be a return of perfumes and cakes. If a son died while engaged, the son's father could substitute another son ; but if there were none over ten years old, the girl's father had the choice of returning the gifts or taking a child ; if there were no other son, then all the permanent gifts must be returned, but not food. The Hittite dealt with other difficulties. If a girl, promised to A, chooses to marry B, she must return all A's gifts : the parents are not responsible. But if the parents made her marry B, then they must make the return. If, after the agreed price is paid by the man, the parents quarrel, then they must return double ; but if the man refuses to carry out the marriage he loses all his gifts.

Affinity is a bar to marriage, which varies vastly in different countries. There was but little restriction among Babylonians or Hittites, and the Assyrian laws never mention the subject among marriage regulations, but may be incomplete. Khammurabi penalised transgression with the mother by burning, with a married woman by drowning, with a daughter by expulsion, with a step-mother by disinheritance, with a betrothed girl by compensation ; but there do not seem to have been any limitations further. The Hittite recognised marriage with a widowed mother-in-law, sister-in-law, or daughter-in-law, or sharing a slave between father and son : they strictly prohibited only the direct line of descent, and married women. Unnatural crimes were punished with mutilation or death, as in Leviticus xx, 13, 15.

Slavery always complicates marriage laws. In Rome the free woman marrying a slave—who might be a highly educated Greek—lost her property and her freedom. There was no such hardship in the East. Khammurabi ruled that if a slave married a free girl, her children were free, and after the slave died, the woman took her own dowry, and the rest of his property was divided between her and the owner of the slave. When the marriage went the other way, if a man recognised his sons by a slave mother, they divided the property like all the rest of his family, and if he had not recognised them, at least they and their mother were free ; there was nothing like American slavery. From Assyria there is no law on the subject preserved. The Hittites had a just law. If a slave married a free girl, and paid a dower, no one could part them. Two employments were, however, looked on with disgust—a herdsman and a perfumer ; such need pay no dower, and their wives were to be slaves for three years. If a slave buy a slave wife, they cannot part. In such a marriage, or if a free man or woman marry a slave, then, if they quarrel, the woman takes one child, and the man takes all the others. This was probably to prevent burdening the woman with support of children.

Divorce was for various causes, but always for a defect in the wife, and seldom at the choice of the husband. In Babylonia, a wasteful wife could be called to account before authorities, and if the husband put her away, she left without anything ; if he did not put her away, she stayed as servant to a second wife. A childless wife went away with all her dower and her portion ; if she had no dower, her husband must give her 60 shekels, or 20 if poor. A wife put away for unnamed causes had all her property and her children, with due share of estate, and could re-marry. She might decline to continue her marriage, and, taking back her marriage portion, go to her father ; but if she had also impoverished her husband, she was thrown in the river. If she were an invalid, she might either stay on with a second wife, or take her portion and return to her father. None of these causes are mentioned in Assyria, though they seem to have had much trouble with wives, as noted further on ; but the settlement was severe. The Hittites only contemplated a man turning robber, in which case the wife had no remedy.

In such fighting races there were many cases of a man being captured abroad. If a Babylonian wife was left thus without support, she might marry again, but could be reclaimed. If she had means, she was bound to wait for her husband, under pain of drowning. The Assyrians compelled a wife to wait for two years, with public provision if she had no means, after which she might re-marry, but could be reclaimed. If she were in her father's house, she must wait for five years before re-marriage.

In Babylonia there were elaborate laws about adoption of sons, but there is no trace of that in either the Assyrian or Hittite laws. It seems therefore to have been a Sumerian custom. The Hittite women were prone to eject their sons in a tiff, by putting their clothes outside the house, and so repudiating them. If the son went back to get his bed and other goods, and the mother took them back, she had to restore her son.

The Assyrians had great trouble with the unruliness of the married women. Theft from the house, and gadding to friends, were severely punished. A woman taking and selling anything from a sick or dead man was to be killed, along with the buyer. If a slave or servant bought anything from a wife, the husband could not get it back unless he cut his wife's ears and the ears and nose of the receiver. If a wife stole from a house a value over five manas of lead, her husband had to restore it, and crop her ears ; if he would not, then the owner of the goods cropped her nose. If anyone bought goods from a married woman with a hoard in the field, he was treated as a thief. This throws light on the habit of stealing and hoarding for sale. If anyone deals with a married woman, even without knowing that she is such, he has to pay two talents of lead. Anyone lending to a married woman was to be thrown into the river, but not bound ; if he got out, he was further to be punished, as the husband punished the woman. Visiting was also stiffly punished. If a wife went often to see another woman in a distant house, without the owner knowing, he yet had to pay $3\frac{1}{2}$ talents of lead, and their ears were cropped. If he did know of it he had to pay triple, and if he disputed he was thrown into the river. If a husband found his wife with another man, he was at liberty to kill or mutilate them both. There was also trouble with quarrels. A scold or reviler was to be separated from her husband and children. If a woman struck a man she had to pay half a talent of lead, and suffered twenty blows. But if a man laid his hand on a woman he lost a finger, and if he kissed her his lower lip was cut off. If a woman joined in a fray (Deuteronomy xxv, 11) she lost a finger, or worse.

Thus there must have been a strong habit of thieving and violence among women in Assyria which is not found among either Hittites or Babylonians, and which is entirely opposite to the trading and freedom in business enjoyed by Egyptian women. A widow was not allowed to have her own house, but was obliged to live with a son. Young men were also kept in order, as any heir who spoke evil, or ran away, lost his inheritance to the king ; if an heir killed any living person, the owner of the person might kill the heir, or else take his inheritance.

Slavery was strictly upheld. Khammurabi made it death to kidnap a slave, or to entice a slave from the palace, or to harbour one if he fled. A fugitive caught in the open country was to be returned for 2 shekels reward. If he would not give his master's name, he was to be sent to the palace, where no doubt it could be extracted. If a fugitive that was caught escaped, his captor must swear to the accident. There is scarcely anything on the subject in the remaining Assyrian laws, except that a servant was worth 4 talents, and a slave was priced differently (amount lost). The capture of a fugitive slave was worth 2 shekels on this side of the river, 3 S. if across the river, or 6 S. if gone to Luyya. If a fugitive was sheltered, the receiver had to pay a year's wages forfeit to the owner. There are also heavy penalties for taking a stolen Hittite to Luyya to sell, and *vice versa*.

A remarkable Hittite custom is shown by the law, that if a freeman at the New Year gave himself to a patron, the patron must discharge the freeman's obligations, or, if a slave, he must pay 10 shekels for him. This regulation at the New Year points to a custom like that of the Chinese discharging all debts at the end of the year. Finding himself hopelessly in debt, the Hittite debtor went to his chief creditor, and offered to become his slave in satisfaction ; but then the debtor's other obligations must be discharged by his new master.

Assault was evidently a familiar failing, and all the codes have detailed fines assigned. In Babylonia an unintentional hurt in a quarrel, if sworn to be without malice, only involved paying the doctor ; if it resulted in death, there was only a fine of 30 shekels, or 20 for a freed man. Yet there were much higher penalties for a deliberate blow : on the head of a superior it counted for 60 lashes, or an equal for 60 shekels ; or a freed man striking a freed man, 10 S. ; or a slave striking a freed man lost his ear. For permanent injury it was *lex talionis*, for eye, tooth, or bone : or on a freed man, 60 shekels ; or for damaging a slave the penalty was half his value. For smiting a father, both hands were cut off. For assault and abortion of a free woman, 10 shekels, or if she die the man's daughter is to die. The Assyrian laws on assault are entirely about injuries to women ; the section on general assault is probably lost. These laws are much like those above, but a woman causing her abortion was to be impaled for it.

The Hittite differed, in avoiding *lex talionis* and resorting to fines for assault, like the races of Northern Europe. For injuries the fines for wounding or knocking out teeth, formerly 60 S., were reduced to 20 S., or if a slave 10 S. ; striking the head, so severely punished above, was only 3 S. ; breaking hand or foot, 20 S., or of a slave 10 S. ; breaking the nose, 60 S., or of a slave only 3 S., showing that it was mainly a penalty for disfigurement ; splitting the nose, 12 S., or of a slave 3 S. ; for abortion, 10 S. Killing was only to be compounded by supplying slaves, 4 for a freeman, 2 for a slave ; wounding which resulted fatally was half of these terms. Chance killing in a fight was compounded for, by giving one slave. Merchants of the ruling races were highly protected by a fine of 100 manas = 6,000 shekels, if killed, probably because of the temptation to rob them when travelling.

From the immense fine, and the absence of any physical penalty, it seems that it cannot have been imposed on an individual, but was levied on a whole district, which was held responsible for such crimes committed in it.

Animals were scarcely regarded in the Babylonian code, only the hire and loss of them being regulated. In Assyria there is only recorded the penalty for stealing any animal, so much lead (half a talent or less), 50 blows, and some days of *corvée* service. The Hittite depended far more on animals, and made detailed laws. Those on direct theft are noticed above. If a young bull, horse or ram strayed, and was detained and raised, seven such animals of half a year to two years old had to be given. If it simply went into a wrong stable or park, it was merely reclaimed. Animals, when found, ought to be taken to the king's store, or, in the country, before witnesses: then there was no penalty. Stray animals need not be given up till evening. Hired cattle dying in fair usage only involved paying hire: but injuries were appraised up to 6 S. for loss of eye of horse or ox. If a wolf seized a sheep, and it was recovered, the captor had the hide and the owner got the flesh. If a pig trespassed, and died of blows, it must be given up to the owner. Dogs were well protected: the fine for killing a shepherd's dog was 20 S., the same as for a freed man; for a breeder's dog, as for a slave, 12 S., or for a common dog, 1 S. If a dog ate up lard, it might be killed without remedy. Bees were important, and were increasing in stock, as the theft of a hive of bees cost formerly 60 S., and was reduced to 5 S. An empty hive was valued at 3 S.

If lost property, in 2100 B.C., was found in possession of any one, he had to prove his purchase, and was allowed up to six months to find the witnesses. If he could not do so he was deemed a thief and was killed. On the other hand, the original owner also had to produce witnesses, and if they failed to identify it he had lied and, as stirring up strife, he was killed. If the seller of lost property has died, the buyer shall take five-fold of the claim from his house. In the Assyrian law nothing is preserved on the subject. The Hittite laws on cattle have been noted above, and if utensils were found, and were not returned to the owner, the finder went to prison. A curious law regulates that if a young animal (wild?) has no mother, and is given into charge of anyone to keep, if it be chased and killed, compensation is due.

The Hittites had laws about burning buildings, due probably to their using wood in a mountainous region, and not mud brick as in Babylonia. A man who burnt a house had to rebuild it, but was not liable for the death of men or animals in it. If a slave burnt a house, his master must rebuild it or give up the slave, whose nose and ears were cut. If a man burnt a barn, he must rebuild it, and replace after harvest any crop that there was in it. If one burnt crops accidentally, he must give up an equal crop. If he burnt an orchard accidentally, he must replant it, and pay 6 S. for each tree, or if a slave, pay one half. Under Hammurabi if a man took aught from a house on fire, he was to be thrown into the fire.

Theft was common in all these countries. It was death in Babylonia to steal, or to receive stolen goods, belonging to a god, a temple, or a palace. Also to receive any property from a man's son or servant, without a witness. (The wives seem to have been better behaved than in Assyria.) Robbers and burglars were to be killed. Stealing cattle of a temple or palace was fined thirty-fold, or by a common man ten-fold: if he could not pay he was to be killed. If a robber could not be caught, the city and governor had to make good the loss, and pay to the family 60 S. for a murder. In Assyria, if anyone but the owner sold an

animal, the seller lost all the price. If any one hired a boy or girl to work, and then sold them, he lost the price, was beaten, and did 20 days *corvée*, or if sold to abroad then 40 days *corvée*. The Hittite fines for cattle lifting have been already stated. A freeman caught in a storehouse was fined 12 S., a slave half as much. If he stole, he must also replace the values ; or, if a slave, his master was responsible ; the fine used to be 60 S., but was reduced to 12 S., and, if a slave, his nose and ears were cut. Theft of fruit was fined 6 S., or from a slave 3 S. ; this shows how strict private property was in orchards and gardens, a position which had recently stiffened, as the fine used to be 1 S. Parallel to this is the heavy fine for carrying away palings ; for 70 lbs. weight of wood 3 S., and if one took a couple of hundredweight, he was given over to the king's justice. This shows excessive care of rights in land. For stealing an orchard, a shekel was to be paid for every ten apple trees, or for sixteen of other fruit trees. Some other fines cannot be interpreted, from our not knowing the units stated.

For stealing from a peasant, a freeman was fined 6 S., or a slave half of that. Stealing from the palace gate (*i.e.*, court of justice) was heavily fined : to take a bronze lance was death ; for a wooden emblem, 6 S. ; for a copper figure, grain was paid ; for a cover of linen a piece of linen. If a door was stolen, thus leaving a house or garden open, the fine was heavy, 60 S. and replacing the door. For a carved stone, 2 S. must be given, an unwrought material was to be replaced by larger quantities. To steal a copper knife cost 6 S., or half that, if a slave. Underclothing stolen cost 10 S. Exemptions from taxes were enjoyed by the priests of Nerik, Arinna, and Ziplanda. Formerly, the weavers of these places were free, with their staff and relatives, but now only the weaver's house is free.

False accusation is scarcely mentioned by Hammurabi, only in one case the accuser is said to stir up strife, and therefore shall be put to death. The Assyrians, on the contrary, had many laws about it. A false accuser of a woman was to be bound, and thrown into the river ; but if the imputation was only in the heat of a quarrel, he had to pay a talent of lead, receive 50 blows, and do a month of *corvée*. The same penalty was due for what is now one of the commonest terms of abuse in the East, imputing infamy to a man ; the Assyrian would soon have decimated Egypt by his laws. There is no reference to false accusations in any of the Hittite laws that are known.

Personal pledge for debt was in the Babylonian system. If a man was seized for debt, and his wife or son or daughter was given to work off the debt, they could not be held for more than three years. If a slave was given for a debt, he might be sold by the creditor ; but if a slave-concubine, and the debtor redeemed her, she became free. The Assyrian decided that if a man or woman is in pledge for money, if the creditor shaved or cut them, he should be beaten and have his ears split. Also if a girl were in pledge she could not be married without father's or brother's consent, and a month's notice was allowed in order to redeem her. The Hittites were less commercial, and show no trace of personal pledges. Turning now to some laws which were peculiar to one country, the Assyrian was very particular about the veiling of women. All married women and their attendants must be veiled. Temple women were veiled if they married, but otherwise had the head bare. All slaves, concubines, and public women must go unveiled. If one was caught veiled, the arrestor on taking her to the palace gate, had the right to her garment, she was beaten fifty blows, and had asphalt poured on her head. If anyone saw her veiled, and did not denounce her, he had fifty blows, weapon and garment seized, ears cut, and one month of *corvée*. If a slave

went veiled, her ears were cut ; or if one did not denounce her, the penalty was as before. If a concubine was made a wife then she veiled, and the declaration must be made before five or six witnesses, before whom the man veiled her, saying, this is my wife.

For landed property that might be claimed, a public crier announced it at length three times within one month, calling on any one who had a claim to bring forward their deeds in proof. Then the crier, and the governors, the mayor and three chief elders all sat to hear the claims. If anyone exaggerated the price of anything, on conviction he was left to the mercy of the king's court. But if he had done so in writing, he was beaten and also his scribe.

The Hittites had also some special laws. If a man and his ox were crossing a river, and someone drove the ox and held on to his tail, should the owner be drowned, the driver got the ox. If a man (A) pushed another (B) into a fire, and he died, then A had to give up a son.

No one was allowed an appeal, or to contest a judgment. " If any one resisted the justice of the king, his whole household were killed ; if one resisted the justice of a dignitary, his head was cut off. If a slave rose against his master, into the great pot he went," whatever that might be.

A long list of prices was part of the Hittite code. Without going into all the details, the general results are as follow. The prices of grain and of labour have been noted at the beginning, in order to understand the shekel value, which was about equal in purchasing power to £2 now. Four manas (4½ lbs.), or 240 S. of copper was worth 1 S. of silver, so copper was at 9s. a pound, about twelve times modern value, like lead.

For the hire of a bronze dish of a mana weight, as much as a shekel a month was required. This seems an astonishing rate, four times the value of the metal for a month's hire, yet we cannot question it as the phrase is the same as that used of the undoubted hire of a beast. A smith for making a copper vessel was paid in grain about seven months' hire of a shepherd, probably about 7 S., worth about £15. This must have been for a very large cauldron, as for a flat dish, of a pound or two, he only had 1 14 S., or about 3 shillings.

For cattle, the prices were, for a plough ox 15 S., great ox 10 S., great cow 8 S. The hire for a year was a third of the value : Sheep, 1 S. ; goat, ¾ S. ; lamb, ½ S. ; kid, ¼ S. ; draught horse, 20 S. ; great mule, 60 S. ; horse, 14 S. ; plough mare, 15 S. Foods were measured by the jar, called *zimittani*, which seems to be the Arabic *demejanch*, which passed into English in the Middle Ages as demijohn, averaging 5 gallons. This early use strengthens the claim for derivation from Damaghan, S.E. of the Caspian ; if so, the site in Arcadia where such jars are made must have been named from the jar. This measure of good oil cost 2 S. ; and of lard, butter or honey, 1 S., which was also the price of 2 cheeses or 3 batches of leaven. Wine cost 1 S. for 14 gallons, or about 4½ d. a pint, not far from the price of rough wine in Italy now.

For clothing, an undergarment, probably a heavy knitted wool vest, cost 30 S. ; a blue wool robe, 20 S. ; breeches, 10 S. ; a robe of sacrifice, probably a ceremonial scarf, 12 S. ; a band, 1 S. ; underclothing, 3 S. A large cloth cost 5 S. Skins were cheap, showing that they were not much worn. 1 S. was the price of an ox hide, or 5 calf skins of 6 months, or a sheep skin with wool, or 10 shorn skins, 4 goat skins with hair or 15 shorn, 20 lamb or kid skins.

Lastly, the aspect of each of these civilisations, as reflected in the laws, may be summed up. In Babylonia there are the products of a long-settled commercial

system. Land and animals were rented or hired. Dealing in stolen goods was more considered than actual stealing. There were laws as to beer licences, distress, building, tenancy, pedlars, account-keeping and such matters which never need regulation in a simple order of life. There is hardly any reference to military matters, and the fiefs are those of officials and not of soldiers. There was a strict descent of property, and the requirement of written deeds. Though the law was very severe on wrongs, it was liberal toward rights, as when a divorced woman must have 60 S. given to her if she had no portion. Slavery was not disgraceful, as slaves might marry free women. A wife who was hopelessly invalided might either take her own portion and go to her family, or continue along with another wife. These laws are certainly protective. Adoption was frequent, and appears to be Sumerian in origin.

In Assyria there was a very different life. There is no reference to rent or hire or commerce; little about cattle, but severe penalties for land grabbing. There was much false accusation and reviling, showing a quarrelsome people. The unruliness of the women, and lack of home-sense is the prominent trait. This points to a large amount of outside marriages, like the modern Persian with Kurd and Georgian girls. These untameable beauties from less civilised tribes would naturally think of plundering a home rather than keeping it, and the "hoard in the field" is an idea that would be impossible to an Egyptian "mistress of the house." There was no divorce law, but only punishments of mutilation or death for misconduct. The particularity of veiling for married women and refusing it to all others agrees with this subjection of a barbarous and unruly element.

The Hittite system was different to both of the others. The agriculture was on the unenclosed common field; orchards were, however, carefully enclosed, and this was rather a new thing, as they had to be strictly protected, and the penalties for carrying off fencing were very severe. The ceremony of a fresh intake of land from the common waste, shows that much enclosure was going on at that time, as new boundaries had to be consecrated, probably to establish a legal title. The taking over of purchased land already in cultivation, was a much less formal matter. These laws, and the slight reference to renting, show that the country was then being gradually settled. There was a public levy of labour for the vintage, a trace of communal life. The land was largely held as fiefs, for which military service was due; the knight and his lieutenant with their followers lived on the estate, and had to cultivate it when not called out on duty. If they quarrelled, they were to divide it. There were also troops levied from other regions, who had no land basis, and who therefore constituted a standing army. The country was wooded, as shown by the laws about burning houses and barns, the Babylonian in his land of mud bricks was less concerned with this. The penalties for assault and injury were not the *lex talionis* of Babylonia; the country was too sparsely peopled to have cripples about, and fines were levied as among peoples of northern Europe. There were many laws about cattle-lifting, but none about trading in stolen goods; it was a land of farms rather than towns. The marriage laws had little to do with property, suggesting that it was kept in men's hands. The slave might marry the free woman, but two kinds of union were strongly disliked—that with a herdsman, probably because of his vagrant life on the pasture hills, and that with a "mixer of unguents" or perfumer, perhaps because he had opportunities for intrigue in households. No divorce is named in any law. Debt might be discharged by voluntary slavery. Merchandise was much encouraged, as merchants were protected by an enormous fine on killing

one, so large that it must have been levied on the district, and not on a single robber. There was no appeal from any legal decision, but capital punishment if it were disputed. The whole condition is much like that of Saxon England, with settlers in a wooded country having plenty of land around them, and much of it held on military tenure. From these laws, then, we gain a fuller view of the Hittite civilisation, which took so large a part as an intermediary between eastern and western peoples.

FLINDERS PETRIE.



INLAID FIGURE OF TUSHRATTA ON HIS THRONE ATTENDED
BY THE HEIRESS-QUEEN ONKHE-EN-PA-ATEN.

INLAY OF COLOURED GLAZE AND GLASS ON THE BACK OF
A THRONE.

REVIEWS.

The Tomb of Tut.ankh.amen. By HOWARD CARTER and A. C. MACE. 8vo. 223 pp., 80 plates. Vol. I. 1923. (Cassell.) 31s. 6d.

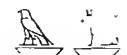
After all the rampant bookmaking linked on to this subject it is refreshing to read the simple and well-balanced record which is here set out by the explorers themselves. The volume opens with a short biography and appreciation of Lord Carnarvon, by his sister: such a tribute would be profaned by any outside comment. The first chapter deals with the history of the king's family, and then follow others with accounts of the Valley of the Kings. The interest thickens when the three remnants of the funeral of Tut.ankh.amen are described, found near together in the Valley, prompting the belief that his tomb must be near at hand. It is not blindfold scrambling, but the careful noting of little things which leads to great results. The foundation deposits outside the entrances of royal tombs are referred to in several instances, but have not yet been published. The history of the actual finding of the tomb is fully recorded in all its stages. The clearing of the contents of the antechamber is described, and the ancient ransacking and rough repacking of all the boxes. All of this is sufficiently full as a final account, leaving the ultimate publication of the objects clear of transient detail. Ten pages bewail the plague of visitors, shameless, heartless wasters of valuable time. Even one visitor in an excavation is a nuisance, expecting to take precedence in the attention which is really due to the workmen. The two hours of daylight, after everyone has gone back to Luxor dinners, would surely have sufficed for external work at the tomb, and internal work would be as well done by night as by day. It ought to have been possible to freeze off the tourist by dead silence. "Work in the Laboratory" is a long and valuable chapter, which should sink into the soul of anyone wishing to interrupt such labour. The need of being left undistracted in order to dive into the details, to reflect on the whole of a site, to reason out the meaning of everything and learn all the indications, is well insisted upon. In short, plainly, no one has any right to interrupt an excavator until he has finished his delicate and difficult operations; all publicity, before things are safely housed in a museum, is an unjustifiable risk. It may be noted that "beads of dark resin" (p. 167) are probably amber; drying papyri between glass (p. 161) is not so good as between packs of dry paper; on Plate LVII there is, surely, the earliest instance of a true hinge. The volume closes with many photographs that have not yet been published, and brief descriptions. The whole account seems exactly fitted to the occasion, giving all that anyone can have a right to expect at this stage. After such strenuous and exhausting work we must thank the authors for setting the good example of publishing in the same year so full an account of what has been discovered. The figure placed opposite, and on the cover of this journal, is from one of the most interesting scenes; the king's face appears here unduly sloping, owing to the curvature of the chair back.

Horus und Seth als Gotterpaar. By HERMANN KEES. Part I, pp. 72. 8vo. (Mitteilungen der Vorderasiatisch-Aegyptischen Gesellschaft (E.V.) 1923, 1. Leipzig.

As a corrective to the view of the prehistoric supremacy of Lower Egypt, and the intrusion into Upper Egypt of a Lower Egypt Horus, Kees states that he has studied the temple scenes and the texts for: (1) the views held in historical times on Horus and Seth as representatives of the two realms; (2) the distribution of certain cults in Upper Egypt which fluctuated between Horus and Seth, or in which may be discerned the secondary interpretation of an older pair of gods; (3) the method by which theological speculation in the Pyramid Texts drew older combinations of gods into mythology; and (4) the essential qualities for the arranging of certain divinities into definite pairs.

The following points emphasised by Kees may be noted here: The author disagrees with Sethe's contention that *Bhd.t* was originally a Lower Egypt cult place, and considers that Horus and Seth were both gods of Upper Egypt. The ignoring of Horus of *Bhd.t* by the Pyramid Texts is inexplicable if he were a local Lower Egypt god, but readily intelligible if he were an Upper Egyptian divinity. The Pyramid Texts render the allegory of Horus and Seth in most varied forms: as personifications of heaven and earth, the upper and lower world, day and night, sun and moon, west and east. The conception of Horus as a sky god and Seth as the lord of storm contains elements older than the Heliopolitan system. Heliopolitan doctrine seems to have brought Seth as a storm god into relationship with the fight of Ra with the serpent Apophis, and to have made him the enemy of the sky god. Thus began his degradation to a principle of evil and the enemy of the gods. This development of ideas necessitates that the pairing of Horus and Seth was familiar at the time of composition of the Pyramid Texts, and that their contrasting is older than Heliopolitan speculation. In certain ancient texts, pairs of gods are mentioned, named the "pair" or "the two lords," who have remained free from such speculations or who were placed together because they belonged to the same district, e.g., "the two lords of the East land" (Sopdu and the falcon god of the eastern middle Egyptian coastland). In these the ancient conditions have been more truly preserved than in the cosmic-astral speculations of the Heliopolitan priests, and in the artificial political division of Horus and Seth between the two realms.

"The two lords in the royal titulary: The term *nbwy* is the titulary of Zoser, with the same meaning as *nby*, and the 1st dynasty queen's title of *Sm³wt nbwy* (𓀃𗐕𗐕𗐕) as variant for 𓀃𗐕𗐕𗐕 show that the idea of two male protective deities of the kingdom goes back to the time immediately after the union. The title "She who sees Horus and Seth" shows that at least one interpretation consisted of Horus and Seth. 𓀃𗐕𗐕 in the titulary of Miebis must also be read *nbwy*, and is a purely ideographic writing of the phonetic 𓀃𗐕𗐕. It is obvious that already in the 1st dynasty two theological theories existed side by side: in one, a pair of falcon gods were protective deities of the two halves of the realm, and in the other Horus and Seth were utilised for the same purpose. The process of theological theory may be assumed to have been as follows: The falcon god of Hierakopolis-Nechen, pressed back by Seth from the position of national god of Upper Egypt, found refuge as Horus of Pe as the national god of Lower Egypt in place of an older heron god. This unnatural construction would explain the anomalous precedence of the

assumed representative of Lower Egypt in the titulary . The most widely-spread modern theory accounts for this phenomenon by assuming that a southern kingdom of Seth was overcome by a northern kingdom, and that the supremacy of Horus originated then (*i.e.*, before the time of the prehistoric "worshippers of Horus"), and points to the title  as "Horus over the Omibite."

The earliest historical records show the reverse—namely, the falcon god with the vulture goddess of El Kab as protector and helper in the conquest of Lower Egypt. Against the view of an early southern kingdom of Seth is the evolution of the royal titulary in the 1st dynasty, which shows that the status of Seth as a national god of Upper Egypt was fully developed in historical times. The placing of Seth as a god of Upper Egypt is illogical in the position usually held by a representative of Lower Egypt in the titulary, but is due to compromise with the idea of the king as the impersonation of Horus.

A parallel to this development of the falcon gods, the *nby*, into Horus and Seth is afforded by the history of the "souls" of the old capitals, and their mode of representation as jackals (Nechen) and falcons (Pe). At the time of the victory of Hieraconpolis, the rivalry for position as protective deity between "Horus" of Nehen and Upuaut of Siut resulted in the adoption of the form of Upuaut by the "souls" of Nehen; the falcon-headed "souls" then found refuge with "Horus" of Pe, the old heron god who had become a Horus.

L. B. ELLIS.

L'Agriculture dans l'Ancienne Égypte. F. HARTMANN. 8vo. 332 pp. 77 Figs. 1923.

This work is a valuable compilation of nearly all the published material relating to trees and plants, methods of cultivation, kinds of animals, mode of capture, and domestication. The use of the work is greatly helped by the full historical list, subject list of sources, and index. This comprehensive collection is therefore well fitted to be a permanent text book of the subject, and will not be superseded in this generation as a regular work of reference. As we may hope before long to see another edition of it, the correction of some details may be pointed out. The classical stories of the rainlessness of Upper Egypt are exaggerated; a heavy day's rain occurs once in most years, and the provision of gutters on roofs, raintraps in tombs, and choice of positions clear of rain-streams, shows that the risk was known anciently. The classical quotations about the rise of the Nile should be aided by modern statistics. The old story of the fertility of the land depending on fresh deposits is refuted by the luxuriance of the Fayum, where there has been no deposit for two thousand years. More facts and less dependance on books is needed, here and in other passages. The actual rate and depth of Nile deposit should be stated. The flint-using ages would be better left alone than dealt with so vaguely: the well-made flint hoes which are common (*Abyd*, i, xx) are not shown. Reference is needed to Newberry's List of Hawara plants, and Dr. Spanton on the lotus (ANCIENT EGYPT, 1917, I). The yew is quoted as a wood imported for use; the much commoner Cilician pine and plane tree are omitted. The metal hoe is not known in the Vth dynasty, the earliest in the source quoted being of the XIXth dynasty; it has since been found in the IXth–Xth period. On p. 79 the flint figured is not that of the reference, and the great blades

of Hierakonpolis have no agricultural use. There is no toothed sickle named in Job xxiv, 24. No obsidian knife for sacrifice is known in Egypt (p. 80). In water-raising, the Archimedean screw and the treadmill water-wheel should be included. The wine-press frame is of the 1st dynasty (*R. T.*, I, xxiii, 37), as also the pig (*R. T.*, I, xxvi, 60). The use of slate palettes is referred to (p. 237) but denied (on p. 219) in favour of the hopeless idea of bucklers. The pan hollow on every example, and the continuous descent from earlier palettes, should have laid this notion long ago. These points are named, as they are sometimes misunderstood, and they should be observed by those who use this work. With some small additions and corrections it may well take its place as an indispensable handbook.

Les Figurines Funéraires Égyptiennes. By LOUIS SPELEERS. 8vo, 188 pp. 41 pls. (Sand, Bruxelles.) 1923.

This is a very detailed study of the variations of the ushabti figures, which will supply curators and collectors with all the means of comparison for specimens. It will thus be a welcome addition to the library of Egyptologists, and the plates give a valuable series of the less usual types. The main novelty is the proposal that the word shabti means *corvéeable*; as the corvée was for Osiris, this applies equally to the figure of the deceased or of a serf. The author does not recognise the sharp division of the purpose of the figure, as representing the deceased till the close of the XVIIIth dynasty, and then being immensely multiplied as representing serfs in the XIXth and onward. There is neither any mention of the complete change brought about by the Ethiopian kings in re-establishing the ushabti, and so founding the Saite style, after the miserable decay in the XXIIInd dynasty.

NOTES AND NEWS.

A preliminary account of the excavations of the British School of Archaeology is given on p. 16. The Director, Sir Flinders Petrie, returned in March, and Mr. Brunton remains, with the rest of the staff, to continue the work till the close of the season.

The Annual Exhibition will be open from July 7 to 26, and on the evenings of the 15th and 25th.

The Egypt Exploration Society has resumed work this season, and Professor F. Ll. Griffith has been directing the clearance at Tell el Amarna.

Most important results have been obtained from Mr. Woolley's work at Ur, finding a tablet of Aanni-pudda, a king of the first dynasty of Ur, which began in 4600 B.C. according to the records. The work of Professor Langdon and Mr. Mackay at Kish has reached a king's name of before 3100 B.C., and beneath that are deposits reckoned as having occupied 1500 to 2000 years. The centre of historic interest, and for great results, lies now in Mesopotamia.

A LANTERN LECTURE ON RECENT DISCOVERIES AT QAU WILL BE GIVEN BY SIR FLINDERS PETRIE, AT UNIVERSITY COLLEGE, GOWER STREET, ON THURSDAY, 15 MAY, AT 2.30, AND REPEATED ON SATURDAY, 17 MAY, AT 3.0; ALSO REPEATED AT ANNUAL MEETING OF BRITISH SCHOOL, ON MONDAY, 19 MAY, AT 5.30.

Admission to these Lectures will be free, without ticket.

ANCIENT EGYPT.

THE BRITISH SCHOOL IN EGYPT.

DURING the past winter a dozen workers were occupied in the excavations of the British School, for many different activities are required—the direction of diggers, the care for the objects found, the keeping of registers, the drawing and photographing, camp management, and very essentially the packing. The results this past season have covered many periods, from the oldest prehistoric to the Coptic.

The earliest human remains found last year have been increased by finding a second deposit of bones, which contained part of another large skull, half of a jaw and part of the front of another jaw, an atlas vertebra, a patella, and several pieces of shafts of long bones. Many bones of animals, beside the great majority of hippopotami, have been recovered, and the identification of these will be of importance for indicating the age of the deposits. The condition of the gravel deposit has been already described (p. 16); but a further question arises as to how these igneous gravels can have been laid down. It seems incredible that they can have been washed down in the general stream of the Nile, as the bed 80 feet thick implies a long continuance of the conditions, and yet there are no limestone pebbles or mud in the beds. If derived direct from the eastern mountains the beds must have been laid down before the long valley of the Wady Qeneh was cut back in the plateau, behind the bay of Qau. There is nothing impossible in this, as the valley mouths, along the Nile cliffs, must have been cut out long before the valleys were cut far back in the plateau. But if this history of the gravels is accepted, it will throw back their age to before the erosion of the long valleys. Such seems reasonable in view of the deepness of limestone breccia and hard mud which overlaid the igneous gravels. The field of the problem now lies in desert exploration along the foot of the mountains, for the original sources of the bone deposits, and the history of the erosion valley which now lies between that and the Nile. The application of these bones of the sacred hippopotamus, as relics, has been shown not only by about a bucketful being found in each of the larger graves, but also by packets of bones, wrapped in cloth and tied up, for deposit in the tombs.

Coming to the age of the continuous civilisation, our former results regarding the successive stages have been consolidated by working through a stratified deposit of a settlement. The order of the pottery found in removing the layers one after another proved to be the same as that previously deduced from the deposits in graves. The sequence dating is thus verified. Moreover, the ripple pottery has been found to belong to the age of the first prehistoric civilisation, or even before that.

In past years, occasional pieces of the ripple pottery have been found, but no large group. It seems to have been made by spreading the clay uniformly by means of a notched bone comb, which left the surface wavy or rippled all over. Last year some bowls were found, of fine thin ware with a polished black face, due to deoxidising in a smother kiln. With these were a globular vase of buff pottery with four small handles, a long narrow palette, and a flint dagger, all of types hitherto unknown. This last season much more ripple pottery was found. With it were flint arrow heads deeply notched at the base, hitherto not found in graves, but known in the surface groups of the Fayum. More of the long rectangular palettes with concave ends appeared, with ornament of three little holes in each corner. There was also a small oval vase with cylindrical



FIG. 1.—SLATE PALETTES, FLINT ARROWHEADS, IVORY VASE.
BADARIAN CIVILISATION OF EGYPT.

1 : 3

neck, a form quite new to us. Rudely chipped ovoid flints were also found. Most important was a female figure carved in ivory, differing from any of the prehistoric ivories hitherto known. It seems plain that we have here remains of a culture quite apart from the usual prehistoric Egyptian, yet of much the same level, using the same materials, but in a different way. The ivory figure shows that it is not that of the steatopygous people. The arrow heads and other flint work point to connection with the makers of the Fayum desert flints, which are of Solutrean style, and accord with the absence of the long flakes of Magdalenian style. As the Solutrean workers are supposed to have come from central Asia it may be that region which was the source of this culture, and similar flints are found on the desert between Egypt and Palestine. If so, we are at last in touch with the age before S.D. 30, and have an earlier civilisation here than any yet

known in Egypt. It need not have been contemporary with the European Solutrean period. Provisionally we may name this culture from the district Badari around Qau, and term it Badarian.

Several settlements of the usual prehistoric Egyptian remains were worked over, near Hamamieh, which provide for the first time the domestic pottery of that age. The large stone jars which were used in the houses are unknown in



FIG. 2. IVORY FIGURE OF BADARIAN CULTURE.

the graves. The spurs of the desert below the high cliffs were much occupied at this period, probably owing to the unregulated state of the Nile, which inundated the whole plain. In the historic period, when dyking had provided dry sites for dwelling, the Egyptian preferred to live near his cultivation, and the desert was occupied by cemeteries, the graves being cut through the ancient settlements. A small saucer-lamp shows for the first time the method of prehistoric lighting.

There were important persons in this district during the Old Kingdom, as a group of alabaster vases was dated by one piece with the name of Hetep-sekhemui of the IIInd dynasty, and other vases are of the VIth dyansty, with the name of Pepy II, and of his mother, Queen Pepy-onkh-nes. The latter vase dates a group with a collar-necked alabaster made in one with a stand, an ivory swastika button, a spoon, and a carved shell with figures of a monkey, a dog's head, and, affixed to it, a ram's head. These were found a few miles north of Qau, while a few miles south a similar large cemetery was further searched, which contained many burials of the IVth to Xth dynasties, with alabaster vases, seals, buttons, amulets and pottery. These, with the other examples collected last year, will serve to give a continuous chain of the varieties of work during the Old Kingdom. A series of changes is seen in the globular pots with a spout, which was gradually reduced to a solid bracket on the neck.

The graves of the period of the great Uahka tombs are indicated by the return to the scarab, in place of the Syrian button of the VIIth and VIIIth dynasties. From Sedment we know that the use of the button badge did not last into the IXth and Xth dynasties. The great rock tombs were all thoroughly cleared, and the painted walls of the great tomb copied (see p. 17). The pieces of massive stone sarcophagi were found of princes Uahka A, Uahka B, and Sebekhetep : many fragments of the statues were recovered, showing a style different from the Egyptian work, and parts of the strange canopic jars of pottery with reliefs of arms holding the *onkh* and *zom*. A complete jar of this type, with the name Uahka, was purchased in Cairo five years ago, and doubtless came from these tombs. The historical question of the period of the great tombs, and the relation of the princes to the XIIth dynasty, is dealt with in the second part of this paper. Of the XIIth dynasty there was a different cemetery, marked by the characteristic form of the kohl pots.

Many tombs were found of the XVIth or XVIIth dynasties, and a large quantity of pottery which shows the prelude to the styles of the XVIIIth. Probably of this age was a great tomb made in a cavern, with a brick well of access built to it, when the cavern was closed up. A large brick pylon stood below it on the hill side, leading to chambers which had been lined with fine sculpture. Fragments of this gave the name of a daughter as Nub-khos, called after a queen of the XIIIth dynasty. There was but a small proportion of burials of the XVIIIth dynasty ; a large enterprise of quarrying was, however, undertaken here, and an immense sloping causeway of brick and earth was built by Amenhetep III, as shown by the stamp on the bricks. Other causeways from quarries are seen on the spurs of the desert.

The quarries of this region are widespread and of large extent, but unfortunately do not contain inscriptions, except of Roman age. There are two entirely different modes of working ; the old way of scaling the face with picked blows lasted till after the XVIIIth dynasty. The cutting during Roman times was by long strokes of a metal pick. Many of the older tombs have been extended, or refaced to some amount, by the long-stroke work. A remarkable feature of the valley above the Uahka hill is the subsidence of the upper strata to a considerable tilt. At first it seemed that there must be a collapsed hollow, but yet the lower strata were solid continuous limestone. It then appeared that in various places there had been a great amount of solution of limestone along weaker strata. This seepage had dissolved away the more crumbling beds, so as to let down the upper parts, by perhaps a quarter of the height of the supporting strata. This

cause of distortion seems not to be generally recognised, but may account for many earth movements.

There was much occupation of this district in Roman and Coptic times. The hill of Qau is covered with shallow graves cut in the rock, having a ledge along the sides to hold the roof slabs. The crematorium shows that there was a Roman settlement or garrison here, apart from the Egyptians. A chamber to one side of the great Uahka tomb had been fitted up as a crematory; on two plastered platforms in it still lay burnt bones, with objects that had been deposited with the bodies. Outside the chamber, four burning places had been made, each blackened by use. These were for full-sized men, and lesser sizes down to infants: the limitation being due to the scarcity of fuel for the burning. On one of these



FIG. 3. VASE OF QUEEN PEPI-ONKH-NES; CARVED SHELL; IVORY BUTTON AND SPOON.
VITH DYNASTY. I : 2.

places lay part of a mummy burnt, showing a curious mixture of rites. Besides the rock graves there were a large number of gravel graves, overlying the earlier cemetery south of Qau. From these came many bead necklaces and ornaments, down to the 7th century. Some glass beakers and dishes and a new form of wine glass were also left here. Tombstones are found of the 3rd century and onward, mostly Coptic of the 5th to 7th century. These show the local dialect, for comparison with the forms in the Coptic gospel found last year.

What may be the future of excavation is very uncertain. The fair terms of half shares to the finder, introduced by Sir Gaston Maspero, has benefited Egypt as well as Egyptology by encouraging controlled excavation, though it would have had much better results if full publication had been a compulsory condition. The new conditions in Palestine, Syria and Mesopotamia seek to grasp more from

the finder, and will therefore produce less activity to benefit the governments ; they are distinctly retrograde. Egypt now tends to follow suit and keep everything of importance. In countries which have not in themselves the knowledge or inclination for scientific discovery, this acquisitiveness is a positive loss, by restraining study abroad and by extra risk of the material at home. In every way the recent legislation is therefore injurious to knowledge and research. There is another factor in the diminishing returns from excavations, owing to sites being exhausted ; also the diminished interest owing to obscure parts of history being cleared up, so that discoveries of importance are the less likely. There is but little inducement to spend months of toil and thousands of pounds on merely clearing cemeteries which contain nothing new to us, and produce little of museum value. There is the further deterrent of the Nationalist fever, and the excitement caused by the Tutankhamen tomb. The notion of "treasure" will stir native opposition to work, which really entails spending much more in the country than any value which is removed. In every direction therefore we seem to have seen the halcyon period of discovery, and the last forty years will be looked back on as the great age of historical research in Egypt.

THE ORIGIN OF THE XIIth DYNASTY.

SOME years ago Prof. Golenischeff pointed out the resemblances of the statues of the XIIth dynasty—particularly of Amenemhat III—to the black sphinxes from Tanis (*Recueil* xv, 133). The type of the sphinxes was, however, far more rugged and massive than any of the kings of the XIIth ; so, though the resemblance could not be gainsaid, yet the sphinxes represented the ancestors of those kings rather than the kings directly. The race had been tamed, disciplined and mixed with sedate Egyptians before it produced the grand, firm, and civilised rulers of the Middle Kingdom.

There the matter rested until the late M. Daressy pointed out (*Annales du Service*, 1917) that the Tanis monuments were the miscellaneous plunder of Ramessu II, gathered from all over the country, to decorate his new capital. The local gods named were those of many different places. Then he capped that, by showing that the black sphinxes resembled, in work and size, a hard limestone sphinx of which a part was found at El Kab, suggesting that the black sphinxes had been brought down from that old capital. That they did not represent the Hyksos was clear, because those kings had roughly cut their names in the shoulders of the sphinxes ; so the sphinx was certainly before the XVth dynasty.

Next, M. Capart proposed that all this group of the sphinxes, the Hapi groups, and the Fayum and Esquiline busts belonged to the archaic art before the IVth dynasty. The objection to this was that it seemed impossible to place such work between the Khosekhem figures and the IVth dynasty statues. They belonged to a later style of work, that had passed beyond the archaic grandeur of those early figures. (ANCIENT EGYPT, 1916, 188.)

It had been remarked that of all periods before the Hyksos the longest clear space for a new style to come in was between the VIIth and Xth dynasties. The close resemblance of the sphinx type to that of the Gallas on the border of Abyssinia strongly points to a Galla invasion of the south, during the Syrian

occupation of the VIIth and VIIIth dynasties in the north, and the IXth and Xth dynasties at Herakleopolis (ANCIENT EGYPT, 1920, 105). Thus the portraiture and style suggested that invaders from the south had occupied Upper Egypt and were the ancestors of the XIIth dynasty.

Three years ago the work at Sedment had further cleared the ground by proving that the use of button badges and geometric seals was peculiar to the Syrian invaders of the VIIth and VIIIth dynasties, as such objects were entirely unknown to the Libyans, who had come in through the Fayum and formed the IXth and Xth dynasties of Herakleopolis.

The position as it stood last year was, then, that we knew of a Syrian occupation in the north, of a Libyan occupation from the west in Middle Egypt, and of a presumption of a Galla intrusion at some part of this period, which could originate the XIIth dynasty.



FIG. 4.—ROCK HALL OF PILLARS, WITH LEIGE FOR ROOF. TOMB OF UAHKA.

The examination of the tombs of the Uahka family at Qau, last winter, has further cleared up the movements in this dark period. The first step is to settle the date of those tombs, and for this a study of the names of different periods is essential. For the IVth to VIth dynasties there is the list of names in Miss Murray's work on "Names and Titles"; this supplies about 850 different names. For the XIIth dynasty I have collected about 550 different names, entirely from steles and tombs dated by kings' names. For the Qau period there are 26 steles known bearing the name Uahka, and on these 136 different names are recorded. Whether the position of these was before, or during, or after, the XIIth dynasty is the problem. Without entering on all the detail, which would form another

paper, the most decisive results can be summarised. First, the whole of the 550 different names on dated steles of the XIIth dynasty do not include a single contemporary Uahka name. Secondly, the Uahka steles do not include a single name compounded with Mentu, and only one with Amen ; as such compounds are the commonest of all in the XIIth dynasty, and continue for long after that, such an omission shows that the Uahka period is before, and not after the XIIth dynasty. The one Amen name is paralleled by one Amen name in the IVth dynasty (L.D. ii, 27), and therefore cannot be fixed to the XIIth dynasty. Thirdly, a frequent type of name in the XIIth dynasty is with *să* or *săt*, son or daughter, prefixed to some god's name, or to some person or quality, and such type continued to the later times. Yet there are only two such names associated with Uahka, which may be paralleled by half a dozen instances in the Old Kingdom. It was one of the least usual types until the XIIth dynasty. Fourthly, there was continued toward the end of the XIIth dynasty a worship of Uahka, as there was a chief of his priests at that time. The evidence of names therefore shows that the Uahka groups were of a definite period apart from the XIIth dynasty, and ruling between that and the VIth dynasty.

A class of scarabs of small size, in hard stones, has the epithet *ka nefer uah* "May the good ka endure," allied to the Uahka name, and probably originating like that from the Uah-ka-ra name of Khety III. The personal names on these scarabs are partly like those of the Old Kingdom, Beba and Atay, and partly like the XIth dynasty, Mentu names and an Ameny. They are distinctly before, rather than after, the XIIth dynasty, by the names and by the style.

Where, then, did this Uahka family come from ? For this we must turn to their works, the great tombs of Qau. The type of these tombs is different from any that went before, and was not continued in Egypt except in a much altered form. In the first place they are very closely parallel to the rock-temples of Nubia. The approach is through a hall with a colonnade of pillars along the sides, partly in the rock, partly built on. That leads to a great hall entirely in the rock. Beyond that is a cross hall, with three recesses for statues at the back, and a chamber opening off each end. None of this detail is found in Egyptian tombs or temples in the Old Kingdom, nor in those of the XIIth dynasty and later times. It remained a foreign type, the source of which is shown by the temples wrought in Nubia on a native pattern, though under the XIXth dynasty.

That there was a connection with the south at Qau is shown by the mode of excavating one of the great tombs. The two Uahka tombs are cut very carefully, the rock walls scrupulously flat, with scarcely a visible error, the corners well worked out, sharp and clean. But there is another tomb between these, having the same plan of the various chambers, yet entirely different in workmanship. The faces look as if worn by a torrent, wavy and rounded, due to breaking away weak parts of the rock and smoothing over the dislocations ; the corners are all widely rounded, evidently pounded out with ball hammers of three to six inches diameter. The whole is manifestly the style of granite working by pounders instead of sharp picks, like the cutting out of the obelisks described lately by Capt. Engelbach. This implies that the princes were familiar with the granite working of Aswan, and that they could bring down a staff of trained men from there to cut out a great rock tomb. The south was evidently in their control.

We have then here a prince holding Upper Egypt about the IXth and Xth dynasties, and bringing in tombs of a Nubian type, otherwise unknown in Egypt.

Here another kind of evidence appears. From the skull measurements studied in the Eugenics Department at University College, entirely apart from any views of history, the conclusion is reached that "There is a close relationship between the Tigre skulls and middle dynastic Egyptian types." This accords with the Galla portrait pointing to a southern origin for the kings of the Middle Kingdom.

A marked difference between the Uahka tombs and those of other periods in Egypt is the rejection of the trend to the west and the cutting of all these tombs pointing to the north. In no place here is there any suggestion of attention to the west rather than to the east. There is only the north direction, substituted for the usual west.

The linking of these tombs to the XIIth dynasty is given by the son of Uahka being named Senusert, which was the family name of the XIIth dynasty. The other name Amenemhat was obviously adopted in honour of their domination at Thebes, but Senusert is a name that goes back to the IXth dynasty, as it occurs on a stele with that of a man named Merykara after Khety II; that royal family was so detested that no one would keep up such a name in later times. Thus this name Senusert is proved to be as early as the IXth dynasty, and to have been used by the Uahka family before we find it as the name of the XIIth dynasty kings.

The whole of this archaeological evidence is finally clinched by the express statement in a prophetic papyrus of the XIIth dynasty, "A king shall come from the south, whose name is Ameny, son of a Nubian woman." Thus the southern ancestry of the Ameny (= Amenemhat) dynasty was certainly recognised (J.E.A., 1914, p. 105).

The whole of these facts seem to shut us up to the following scheme of the history. At the close of the VIth dynasty the Syrians, who had been filtering in before, broke the Egyptian rule and took over the kingdom. In the south a king of the old style remained, Uaz-ka-ra, who held Nubia and Koptos. He was succeeded by invaders akin to the modern Gallas, who captured the school of black granite workers, and so continued Egyptian art with a new style of portraiture. These Gallas held the Thebaid, and when the Libyans came in through the Fayum and founded a capital at Herakleopolis, the southerners became subjects or allies of the Khety family. They retained, however, the rule of the Thebaid up to Aswan and constructed the great temple-tombs of Qau. The name Uahka was borrowed from that of Khety III, Uah-ka-ra, and became so celebrated that over thirty persons are recorded of that name. Khety II was on friendly terms with the southern princes; they took the family name from Khety III; and Khety IV when driven from Herakleopolis took refuge with Prince Khety of Asyut close to Qau. The Qau princes had the name Senusert in the family. They lasted through the Xth dynasty, while the Antef family cut them off from the south, but did not reach north of Ekhmim, until the Mentuheteps finally crushed the north and held the supremacy for 43 years. Meanwhile one of the Uahka family aspiring to hold Thebes took the name Amenemhat, his son having the family name of Senusert, which is found long before as a son of Uahka of Qau. On the succession of two brief reigns, at the end of the Antef and Mentuhetep family, Amenemhat occupied the throne, upset the last Theban in three years, and so the old Galla princes of Qau founded that line of great kings who kept to the last the features of their ancestry.

It is remarkable how renewed vitality has always come into Egypt from the south. The 1st dynasty appear to have moved up from Punt. The IIIrd dynasty, which led to the IVth, shows a strongly Ethiopian face in Sa-nekht (*Sinai*, fig. 48). The XIIth we can now trace to a Galla origin, which stamped its features. The XVIIIth was of Berber race, paled by marrying a Libyan princess. The XXVth was from distant Meroe. Each of the great stages of Egyptian history seems to owe its new energy to a southern conquest. Had we left Egypt alone lately, the Sudani might have repeated this revival. He may yet accomplish this.

FLINDERS PETRIE.

THE ANNUAL EXHIBITION AT UNIVERSITY COLLEGE WILL BE OPEN FROM JULY 4TH TO 26TH, 10-5, AND IN EVENINGS OF 15TH AND 25TH, 6.30-8.30. ADMISSION FREE WITHOUT TICKET.



ANCIENT CLEPSYDRAE.

THE Ancients made use of two kinds of Clepsydrae or Water Clocks, which may be distinguished conveniently as "Outflow Clocks" and "Inflow Clocks."

The former type appears to have originated in Egypt and consisted of a vessel shaped like a flower pot (Fig. 1) provided with one small aperture at the side near the bottom. The pot was filled with water, which *flowed out* gradually through the opening, and by noting the water level against a scale of markings on the inner surface, an estimate of the intervals of time was obtained.



FIG. 1.—ALABASTER CLEPSYDRA OF AMENHETEP III. KARNAK.

The other type came into use in later times and consisted of a pot of cylindrical shape, into which water was allowed to drip (Fig. 4) or which was placed in a larger vessel maintained full of water, which gradually *flowed into* the pot. The level of the water as it rose was indicated by the position of a float against a scale.¹

The oldest specimen of water clock in existence (Fig. 1) is of the Outflow type and dates from the time of the Pharaoh Amenhotep III (c. 1400 B.C.). It was

¹ Models of clocks (Figs. 1 and 4) may be seen in the South Kensington Museum.

found in 1904 at Karnak, broken in many pieces, and was reconstructed for the Cairo Museum. The vessel is of translucent alabaster and stands about 14 inches high. The outer surface was decorated with coloured stone and fayence inlay work, and various scenes, stars and constellations are depicted in three rows.

The lowest register is divided into six compartments showing the King with the twelve moon gods, two in each compartment. The aperture is situated between the first and sixth compartment. A study of the fragments of other clocks now scattered over the museums of Europe¹ leaves no room for doubt that over the aperture there was originally a seated figure of the dog-headed ape--sacred animal associated with Thoth, god of wisdom.²

In the middle register above the aperture are depicted the circumpolar stars, and the rest of the row is filled with representations of the deities of the days of the week.³ Opposite to the aperture is a large compartment extending over the middle and upper registers and in which the King is shown protected by the moon god Thoth and offering sacrifice to the sun god Harmachis.

The remainder of the upper register is occupied with representations of the planets and of the constellations through which the sun travels in the course of the year.

Similar designs appear on water clocks figured in the wall-paintings of the Ramesseum⁴ and at Medinet-Habu⁵: also on the ceiling decoration of the Ramesseum.

Vessels such as these were used to divide the night time into 12 parts—the “hours” of the night⁶—for the temple-watches. On one fragment⁷ the inscription runs:—

“Every figure is in its hour . . . to fix (?) the ‘hours’ of the night, if the decan stars⁸ are not visible,⁹ so that in this way the correct time (?) of the sacrifice will be observed.”

The length of the “hour,” of course, varied with the time of year, being shortest at the summer solstice and longest at the winter solstice.

An account of a clock of this pattern occurs in a tomb-inscription at Shekh Abd-el-Gurna of an official named Amenemhet, who lived under the XVIIIth dynasty Pharaohs, Aahmose I, Amenhotep I and Thutmose I. The record is sadly mutilated, but the following is a free translation of some parts which remain decipherable—with the addition (in brackets) of some conjectural phrases.¹⁰

¹ For complete list see *Proc. Soc. Bibl. Arch.*, June, 1901, pp. 271–274, or Borchardt, *Die Gesch. der Zeitmessung u. Uhren*, Vol. i, p. 64, hereinafter referred to as *G.Z.U.*

² “ . . . in hydrologiis suis Aegyptii Cynocephalum sedentem pingunt, ex membro vero ejus aquam affluentem faciunt.” Horapollo, *Hierogl.* i. 16.

“ Le singe est l’emblème de Thot, le dieu de la science et de l’équité, qui se confondait souvent avec Aâh, la lune, symbole de la regularité. D’après une croyance générale dans l’antiquité, le cynocéphale urine à intervalles réguliers douze fois par jour.”—Daressy, *Bull. de l’Inst. Égyp.* 1915.

³ Brugsch, *Thesaurus*, pp. 46, 53.

⁴ Lepsius, *Denkm.* 3, 170–1.

⁵ Daressy, *Med. H.* p. 155 *et seq.*

⁶ So written in this article to distinguish from our one-twenty fourth part of a day.

⁷ *Brit. Mus. Guide to Egy. Sculp.* (1909), Nos. 948, 949 (Bay 29).

⁸ The 36 constellation situated on the horizon at any given time.

⁹ A similar phrase occurs on a fragment now in Florence.

¹⁰ *G.Z.U.* pp. 60–63.

" The first time I was honoured was in the reign of the majesty of the King of Upper and Lower Egypt, Amenhotep I, while reading in all the books of the divine words¹ (I found that the winter night was) 14 (" hours " long) if the summer night was 12 " hours " (long) (I found an increase in the length of the nights) from month to month (and) decrease month by month I (represented them on the vessel of the water clock) and the movements of (the sun god) Re (and of the moon god ?) with the utterances of both. . . . The sign of life and happiness is in their hand. . . . (the sun god) Re gives (it) to the moon goddess Nechbet, who approaches Re (she holds the sign of life) which she has in her hand, to the nose of his majesty. She approaches him. . . . glad that he sees these goddesses as they go to and fro in his presence. I made a *Mrhyt* reckoned from the zero of the year (?). It was for the deceased king. . . . Never was one made like it since the beginning of time. I made this splendid instrument in honour of the deceased king, Amenhotep I, divided in half (and thirds).² It was correct (?) at the beginning of the harvest season, in winter (?) at the of the moon in its times. Every hour (lies) to its time (?). The water runs out through one outlet only."³

If Amenemhet's work was original, this is interesting as the earliest known record of physical observations. He gives the relation between the lengths of summer and winter nights—or perhaps the scale lengths corresponding to midsummer and midwinter—as 14 : 12.

The clock described is similar to the one found at Karnak. Around the rim of this vessel appear the names of the calendar months in order. On the inner surface under each month sign is a row of small depressions⁴ about one-fifth of an inch in diameter, extending towards the base—their position corresponding to the water level at the various " hours " for the month in question. The row of marks constitutes the scale for the month (see Fig. 2). The longest scale (4th month—Hathor, September) measures 14 " fingerbreadths," and the shortest (Pachons, March) 12, agreeing with Amenemhet's relation.

In use, the vessel was filled to the full-line, not visible in the Karnak example, where it had probably been painted on. Traces of the line are to be seen in the other fragments. At the end of the first " hour " as measured by the clock, the water level would have sunk to the first mark, and so on successively through the various " hours " to the last mark. Except in the case of one month, the last mark is not shown as its position is covered by the row of alternate signs of Life and Stability which decorate the interior. The flow of water from the orifice averaged 10 drops a second.⁵

We must now consider how the markings for the water levels were obtained. Among the Oxyrhyncus Papyri is part of the leaf of a papyrus book, dating from the 3rd century B.C., and containing descriptions of astronomical instruments.⁶ The calculations are indicated in this fragment.

¹ *i.e.*, in the whole of the Egyptian Literature

² In order to get the twelve divisions. The *Mrhyt* was an instrument of measuring time.

³ The *lacunae* are not of equal length in the original.

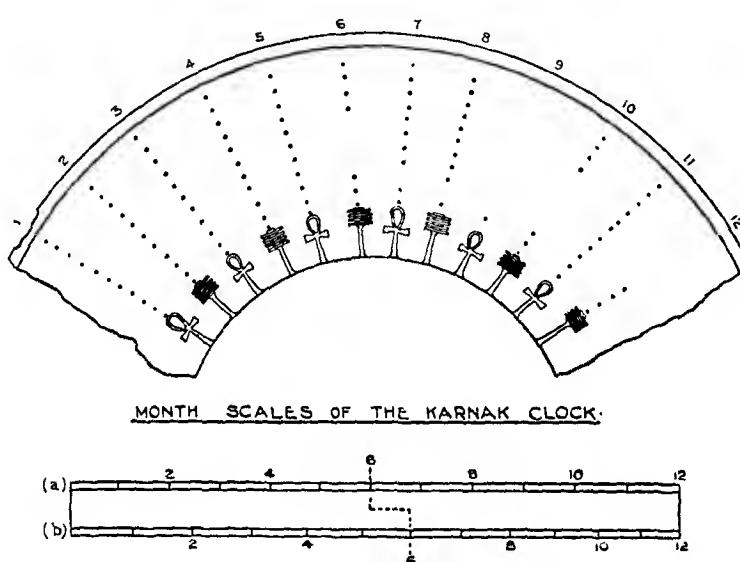
⁴ In other examples, a small circle crossed diametrically by a short horizontal line—⊕.

⁵ Horapollo states that a metal tube of narrow bore was fitted to the aperture (*loc. cit.*).

⁶ Grenfell & Hunt, Vol. 1, No. 470, p. 145.

"The following is the construction for clocks. The upper part of the vessel is made 24 fingersbreadth, the base 12 and the depth 18."

These dimensions correspond closely to those of all the vessels for which figures can be obtained. The calculation proceeds to find the volume of the 12 sections. First the mean diameter is found thus:— $(24 + 12) \div 2 = 18$: then, the mean circumference by multiplication by 3—result 54: next, the mean sectional area, by multiplying the diameter by one-quarter of the circumference ($2r \times \frac{1}{4} \text{ of } 2\pi r = \pi r^2$). This gives the volume of the section of depth 1 fingerbreadth, on the assumption that the volume of the frustum of a cone is equal to the volume of a cylinder of the same height and same mean diameter. This assumption is incorrect.¹



COMPARISON OF
 (a) SCALE OF EQUAL HOURS WITH
 (b) SCALE OF HOURS AS SHewn BY THE KARNAK CLOCK.

FIG. 2.—MONTH SCALES.

FIG. 3.—COMPARISON OF SCALES.

Since the height is $18f$, 18 divisions determined by 19 horizontal lines will be required, and the diameter decreases from $24f$ to $12f$ by 18 steps—i.e., by $\frac{2}{3}f$ per step. The volume of each successive section is found in the same way. It is not quite clear how the volumes of the sections were utilised, but it seems evident that it was believed that the water level sank equal heights in equal times. This is not true for any vessel, in which the side is inclined to the base at an angle

¹ With the usual notation, and denoting 1 fingerbreadth by f , the Egyptian calculation corresponds to the formula $3h \left(\frac{r + \rho}{2}\right)^2$ giving $4,374 \text{ cu. } f.$, for a vessel of the dimensions given above. The correct formula is $\frac{h\pi}{3} (r^2 + rp + p^2)$ giving $4,752 \text{ cu. } f.$

Note— $1f = \frac{1}{4}$ " hand " = $\frac{1}{28}$ cubit = $\frac{3}{4}$ inch approx.

See also article by the writer on "Egyptian Mathematics" in *ANCIENT EGYPT*, 1922, Pt. IV, p. 116.

varying between 109° and 112° as in the Egyptian examples. It would be approximately true if the angle were 103° , and theoretically exact for a vessel of which the section corresponds to the curve $r = 2\sqrt{h}$.

The fundamental scale (12*f*) is the shortest of the Karnak clock. In the others it occupies the middle position. The aperture of the Karnak clock is a distance of 4*f* below the lower end of the 12*f* scale.

The variations in the scales from month to month must now be considered.

In the Karnak example, the scale lengths in terms of fingerbreadths "f," are approximately as follow :—

10th month	...	...	12 <i>f</i>	The errors are almost negligible
11th and 9th months	...	...	$12\frac{1}{3}f$	except in the case of the figure 13 <i>f</i> ,
12th and 8th months	...	...	$12\frac{2}{3}f$	which is $\cdot25f$ too great.
1st and 7th months	...	...	13 <i>f</i>	
2nd and 6th months	...	...	$13\frac{1}{3}f$	
3rd and 5th months	...	...	$13\frac{2}{3}f$	
4th month	...	...	14 <i>f</i>	

These figures show that a uniform change of $\frac{1}{3}f$ per month was intended.

It has been pointed out ⁽¹⁾ that the Egyptians probably took into account the different rates of flow due to changes in the viscosity of the water at different temperatures. This effect would tend to make the scales for the summer months shorter, as the flow is increased with rise of temperature ⁽²⁾. As the clocks were probably used in the interior of massive stone buildings the differences of temperature would not be great. If the effect of viscosity is taken into account, the ratio between the lengths of the longest and shortest nights as indicated by the clock is probably not far from correct.

The mass of the building would tend to delay the times of highest and lowest temperature, and this accounts for the fact that the shortest and longest scales are those for September and March³—not those for the solstice months, as we should expect.

Of the remaining examples of Outflow Clocks, those dating from Ptolemaic times have scales showing approximately correct proportional changes (*i.e.*, 3 : 2 : 1). This indicates a distinct advance in theory since earlier times. It is not clear if the new theory originated in Egypt or is due to Greek influence.

A study of the scales makes it evident that the Ancients did not succeed in dividing an interval of time by these methods into anything approaching equal intervals. The "hours" indicated by the clock for any month show considerable variations. Although nearly correct at mid-scale, the early "hours" were $\frac{1}{5}$ to $\frac{1}{4}$ too long, and the later ones were too short by the same amount. (See Fig. 3.)

The reason for this will be clear from the preceding. It was believed that the water level sank equal heights in equal times. In fact, so far as we know, the

¹ ANCIENT EGYPT, 1917, p. 42.

² Athenaeus (II, 16), 3rd century A.D., remarks that water "used in hour glasses does not make the hours in winter the same as those in summer, but longer, for the flow is slower on account of the increased density of the water."

³ About 1400 B.C., the month Hathor commenced in mid-September and the month Pachons in mid-March.

Ancients had no simple means of determining whether the "hours" were equal or not.¹

Certain figuring on some sacred cubits appears to consist of tables connected with the markings on water clocks, but their use has not yet been determined.²

Another example of a water clock was found at Edfu in 1901 and is now in the Cairo Museum (Fig. 4). Judging from the style, it dates from about A.D. 100. It is a cylindrical vessel about 12 inches in height and over the aperture at the base is the figure of a seated ape. Round the inside run twelve uneven curves, divided into twelve parts by vertical lines, for the months (Fig. 6).

As an inflow clock the vessel would have been used in the following way. At the commencement of day or night, the aperture was closed and water was



FIG. 5.—MODEL IN CAIRO.



FIG. 4.—EDFU CLEPSYDRA, CAIRO.

poured in until the level stood at the lowest mark. Water was allowed to drip into the vessel from a reservoir. As the level rose within, the height at any given time could be read on the interior scale or more easily by means of a float arrangement indicating the time on a scale outside. Such clocks were common in Roman times.³ If the reservoir were maintained full of water, so as to provide a constant head, errors due to diminished flow as the reservoir emptied would be eliminated.

So far as we know, inflow vessels were always cylindrical in shape, and under constant head of water in the reservoir and neglecting temperature changes, a

¹ The pendulum does not seem to have been known before the time of Galileo, who is said to have applied a simple form to the measurement of pulse beats (A.D. 1583). The Ancient Egyptians knew that there is a connection between the pulse and the heart beats, but there is no direct evidence that they took note of variations of the pulse in sickness or made any quantitative observations. Galileo used a form of water clock for the determination of time intervals in his experiments on the motion of bodies on inclined planes.

² See *G.Z.U.*, p. 14B.

³ Ctesibus invented an improved form in Alexandria 245 B.C. (*Vitr. de Arch.* IX, 9).

uniformly divided scale would be correct. Had these vessels been used as outflow clocks previously described, the inaccuracies would have been considerable.¹

Models of these clocks bestowed as votive offerings can be seen in the Museums of Cairo, Leyden and New York. A specimen from Cairo is illustrated in Fig. 5. It stands about $4\frac{1}{4}$ inches high.

Water clocks were introduced from Egypt into Greece and Italy², and thence spread to other countries in Europe. The Greeks named the instrument *κλεψυδρα* (whence the Latin *clepsydra*) "Water—thief"—from two words, to which our words "kleptomaniac" and "hydrant" are related. The water "stole away." The clocks were used by day as well as by night, and one was placed in the market place of every important town. Noblemen would send their servants to enquire the time. The clock was guarded by an attendant whose duty it was to fill it at the proper intervals and to protect it from interference by the mischievously disposed. No doubt the small boy of the period found its attraction irresistible and delighted to dabble in the water or to introduce pebbles in order to stop the flow.

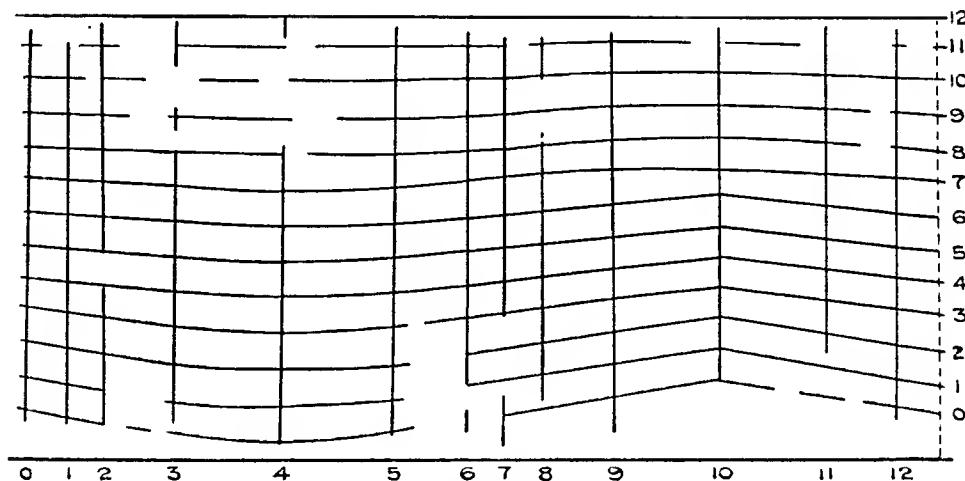


FIG. 6.
MONTH SCALES OF THE EDFU CLOCK.

In the Roman Law Courts, water clocks were regularly used "to prevent babblings, that such as spoke ought to be brief in their speeches" (Phavorinus). Hence the Latin phrases, *aquam dare*—"to give an advocate speaking time," and *aquam perdere*—"to waste time." The poet Martial refers to a tiresome speaker, who moistened his lips from a glass of water, and he suggests that it would be as great a relief to himself as to the audience if the speaker drank from the water clock! A Roman lawyer is said to have muddied the water to impede the flow and enable him to gain time.

Caesar used water clocks to regulate the night-watches for his troops in Britain and noted that the summer nights were shorter here than in Rome.

¹ The emptying time of a cylinder from which water *flows out* naturally through a small aperture is twice the emptying time under constant head of water and is proportional to the square root of the "head." It follows that the height-differences for equal time-intervals are proportional to the odd numbers. This is not the case for the Edfu vessel, in which the scale markings for any particular month are evidently intended to be equally spaced.

² See E. J. Wood—"Curiosities of Clocks and Watches."

So late as the 9th century, a clepsydra was looked upon as a princely gift. Among other presents, including treasures of Eastern silks and a favourite elephant, Haroun-al-Rasched presented a very elaborate and costly clepsydra to Charlemagne. As the hour struck, the case opened, figures on horseback appeared, and balls dropping into a resounding bowl indicated the time.

A simple form was in use in India until recent times. A copper bowl provided with a small opening at the bottom was floated on water. When it became full and sank, an attendant struck the hour, emptied the bowl and floated it again.¹

Water clocks lingered in France and Italy until the end of the 15th century, when they were gradually displaced by the introduction of clocks and watches in which regularly moving mechanism provided a more accurate and reliable method of measuring time.

R. W. SLOLEY.

[Regarding the Edfu cylinder, it is very difficult to regard it as an inflow vessel, because the lines start from a uniform level at the top, and vary greatly between the months below. The idea of beginning each night by a variable filling up to a given mark seems very unlikely. There is one way in which it would work truly as an outflow vessel like the Karnak vessel. If a solid cone was placed inside, with a base equal to the vessel, and tapering parabolically to the top, then the water space around it could be proportionate to the height over the base, and therefore to the flow through a discharge pipe below. Thus the graduations should be equal, as we see them. Such a cone would necessarily be a separate piece, and when once parted from the vessel the purpose of it would not be recognised. A plain cone of this kind is at University College. The longest divisions being for September, and the shortest for March, prove that they were varied for temperature, and not for the solstices. The hours were always equal, as specified in the inscription which names the winter night as being two hours longer than in the summer. (See *ANCIENT EGYPT*, 1917, pp. 42-45.)

F. P.]

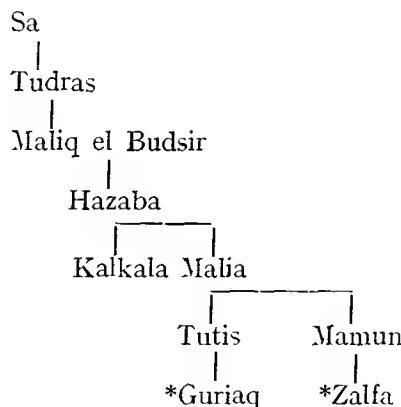
¹ Professor Petrie points out that the inflow bowl developed from the floating cocoanut with a leak in it, used for time in voyages by Pacific Islanders.

MAQRIZI'S NAMES OF THE PHARAOHS.

SOME years ago Prof. Petrie suggested to me that a fruitful field of investigation might be found in the study of the Arabic names of the Pharaohs. These names are no more distorted in Arabic than they are in Greek, and therefore a certain number of identifications are possible. It is also evident that tradition has preserved certain incidents and events otherwise unrecorded. In this paper I take only Maqrizi's account as given in his chapters on the cities of Amsus (امسوس) and Memphis, Amsus being the ancient name of Masr or Cairo.

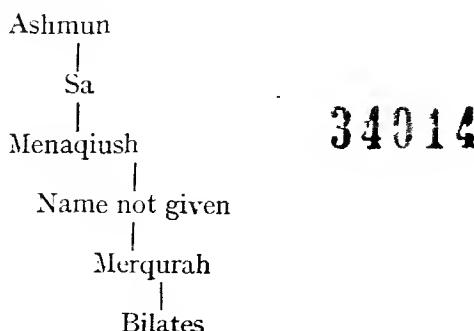
The Kings of Memphis begin with Beisar, son of Ham, son of Noah ; the genealogy then continues, in the same way as in Genesis x, with tribal, not personal, names. Maqrizi quotes various authorities who differ slightly in the order of the tribes, but they all agree on the one point, which is that the earliest personal name is Tudras, son of Sa. The genealogy, as quoted from Ibn Abd el Hakim, gives Masr, son of Beisar, then in succession the four sons of Masr—Quft, Ashmoun, Atrib, and Sa. These names show clearly that up to this point we are dealing with tribes or cities, therefore Tudras ben Sa must be Tudras the Saite. This suggests that according to tradition the Kings of Memphis came from the Delta.

The most consecutive genealogy given by Maqrizi himself, and also quoted from Ibn Abd el Hakim, represents, perhaps, a Saite dynasty, and is as follows :—



In the reign of Zalfa the Amalekites (Hyksos ?) entered and conquered Egypt after a series of battles, the Egyptian queen retreating further and further south, until she reached Kus, where she committed suicide rather than fall into the hands of her enemies.

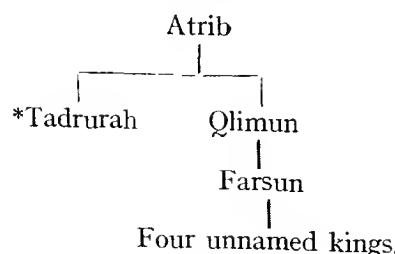
Another genealogy appears to represent the Kings of Ashmun :—



The termination *sh* which occurs so often in Maqrizi's names suggests a foreign, probably Greek, source of information. Both Menaqush and Merqurah suggest Egyptian names, the latter might very well be derived from $\odot \text{---} \square$, a name of a king in the XIIIth dynasty. It might, however, be a distorted form of $(\odot \text{---} \square)$. Merqurah was, according to Maqrizi, a wise magician. He built cities, founded temples, and raised statues. At his death he was buried in the western desert with rich magnificence.

Bilates, the son of Merqurah, was a child at his father's death, and the kingdom was governed by his mother, whose name, unfortunately, is not preserved. She is said to have been a capable and just ruler, who gained the affection of her subjects by lowering taxes. When Bilates reached manhood he left the administration in her hands, and amused himself with hunting. After a reign of thirteen years he died of small-pox and the succession passed to his uncles. As Maqrizi calls these uncles Atrib and Sa, it is evident that they are each the beginning of a new genealogy of Athribis and Sais respectively. The account of Merqurah and Bilates gives a reasonable and unexaggerated summary of two reigns, of which the last may possibly be identified. There is at least a resemblance between Bilates and Thothmes II, the weak young king whose energetic and capable queen administered the kingdom. The marks on the skin of the mummy of Thothmes II may have been caused by the same malady of which Bilates is said to have died. There is, however, no possibility of deriving the name Bilates from any of the names of Thothmes II; therefore, though the tradition may point to Hatshepsut and Thothmes II, the name must be sought elsewhere. The Bilates of Maqrizi is one of the earliest kings of history, and I would suggest that the name is identical with that of a Pharaoh of the IIInd dynasty $\text{---} \square$. The reading presents only one difficulty, the final *n*; with that exception, the name Per-hati-s passes easily into Bilates. The question whether the *n* is essential to the meaning of the phrase cannot be certain until that meaning is known. If it is merely the indirect genitive, as in Senusert, the name could be written either with or without the *n*.

The Athribis genealogy is very short:—



This Athribis is clearly in the Delta, for Qlimun is said to have built both Tennis and Damietta. As the kingdom reverted to Sa ben Qubtim, it would seem that Sais absorbed Athribis.

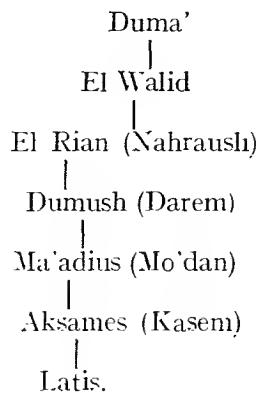
The most consecutive genealogy of the Saite kings has been given above.

Interchange of Arabic letters by misreading of diacritical marks or by misformed signs.

ج = f ش = s ح = kh ج = g ش = sh ح = dh ج = y
 ج = q ش = t ح = h ج = b ش = n ح = d ج = l

TRANSLITERATION	DIUSQLITA	780r88	MAQRIZI	ديوسقوليطا	EARLY ARABIC ^{xxi}	AFRICANUS
SMANADUS	26		سِمَانَادُوس	سِمَانَادُوس	سِمَانَادُوس	Εικοστή Συνασπία ραπλέων Διοισπολίτων 13 ^ο εἰρηβασίλευσαν ἔτη γρά
SUMANAS	100		سِيُونَادُوس	سِيُونَادُوس	سِيُونَادُوس	Συνδήσια 26
MEFKHRAS	4		مَفْخِرَاس	مَفْخِرَاس	مَفْخِرَاس	Ψουσέννης 46
AMANAQUNAS	9		اَمَانَا قُونَاس	اَمَانَا قُونَاس	اَمَانَا قُونَاس	Νεφελχερής 4
ASEHURIS	6		اَسْهُورِيس	اَسْهُورِيس	اَسْهُورِيس	Αμένωφθής 9
FESINAKHES	9		فَسِينَا خَس	فَسِينَا خَس	فَسِينَا خَس	Οσοχώρ 6
FESUSANES	35		فَسُوْسَانَس	فَسُوْسَانَس	فَسُوْسَانَس	Ψινηλής 9
SESUNAKHUSIS	21		سِسُونَا خُوسِيس	سِسُونَا خُوسِيس	سِسُونَا خُوسِيس	Ψουσέννης 14
ASALIUN	15		اَسَالِيُون	اَسَالِيُون	اَسَالِيُون	xxii Σέσογχις 21
TAFALUNIS	13		طَافَالُونِيس	طَافَالُونِيس	طَافَالُونِيس	Οσορθών 15
NETAFANASTLES	25		قَطَا وَا يَسْطِيلِسْ نَطَا فَانَا سِطِيلِسْ	قَطَا وَا يَسْطِيلِسْ نَطَا فَانَا سِطِيلِسْ	قَطَا وَا يَسْطِيلِسْ نَطَا فَانَا سِطِيلِسْ	(Αλλοι τρεις ἔτη κε) 25
ASARATHUN	9		اَسَارَا فُور	اَسَارَا فُور	اَسَارَا فُور	Τακέλωθις 13
FESAMRES	10		فَسَا فُورِس	فَسَا فُورِس	فَسَا فُورِس	(Αλλοι τρεις ἔτη μετά) 42
AUFAINUAS	44		اُوْفَا يِنْوَاس	اُوْفَا يِنْوَاس	اُوْفَا يِنْوَاس	xxiii Πετουράτης 40
SAYAQUR	12		سَايَا قُور	سَايَا قُور	سَايَا قُور	Οσοργώ 8
SEKHIS	12		سَاخِس	سَاخِس	سَاخِس	Ψαμμούς 10
TERAHUSH	20		طَرَاحُوشْ	طَرَاحُوشْ	طَرَاحُوشْ	Ζήτ 31
AMRAS	12		اَعْرَاس	اَعْرَاس	اَعْرَاس	xxiv Βόχχωρης (συνει 44) 6
ASTETAFINIAS	7		بَسِطَا سِيلِسْ اَسِيَطَا فِينِيَاس	بَسِطَا سِيلِسْ اَسِيَطَا فِينِيَاس	بَسِطَا سِيلِسْ اَسِيَطَا فِينِيَاس	xxv Σεβάκων 8
BAKHFASUS	6		بَاحْفَا سِيلِسْ	بَاحْفَا سِيلِسْ	بَاحْفَا سِيلِسْ	Σεβίχως 14
YAKHU	8		يَا خُو	يَا خُو	يَا خُو	Τίρκος 18
FESAMAMELTIQUSH	44		فَسَا هَا طَلَطِيقُوشْ	فَسَا هَا طَلَطِيقُوشْ	فَسَا هَا طَلَطِيقُوشْ	xxvi Αμαχής (Syncl.) 12
BEHENUQA	6		بَحْنُو قَا	بَحْنُو قَا	بَحْنُو قَا	Στεφάνητης 7
FESAMERTAS	17		فَسَا هَرْتَاس	فَسَا هَرْتَاس	فَسَا هَرْتَاس	Νεχέψως 6
UAFRES	25		وَافِرِس	وَافِرِس	وَافِرِس	Νεχάω 8
AMASLES	42		اَهَا سِلِسْ	اَهَا سِلِسْ	اَهَا سِلِسْ	Ψαμμητίχος 54
AMERTIUSH	6		اَمِرْطِيُونْش	اَمِرْطِيُونْش	اَمِرْطِيُونْش	Νεχάω Σεύρερος 6
MAFRETAS	7		هَافِرْطَا س	هَافِرْطَا س	هَافِرْطَا س	Ψάμμουθης (Euseb.17) 6
AUKHRES	12		اَوْخَرِس	اَوْخَرِس	اَوْخَرِس	Ούαφρης (Euseb.25) 19
FESAMUT	2m		فَسِيَامُوت	فَسِيَامُوت	فَسِيَامُوت	Αμωσης (Euseb.42) 44
MUTATUS	7		هَوْنَا طَوْس	هَوْنَا طَوْس	هَوْنَا طَوْس	Ψαμμητίχης 6m
NAFATANEBUSH	13		نَا فَاطَانَبُوشْ	نَا فَاطَانَبُوشْ	نَا فَاطَانَبُوشْ	xxvii Αμύρτεος 6
TUS	7		طَوْس	طَوْس	طَوْس	xxviii Νεφελίτης 6
NAFATANINAS	18		نَا فَاطَانِيَنَاس	نَا فَاطَانِيَنَاس	نَا فَاطَانِيَنَاس	Αχωρης (Euseb.12) 13

The Amalekite kings, who may represent the Hyksos, are as follows (the names in brackets being variants) :—



These are not identifiable, and are followed by the "Pharaoh of Moses," whose genealogy is given with great particularity back to Shem and Noah, notwithstanding the fact that he is said to be a slave and an Egyptian. After him come a number of kings and queens without any order, until we reach solid ground with the XXIst dynasty. The names of these kings are said to be Greek (*Rumi*), and it is fairly certain that they are copied from Manetho, though the variants show that it was not from a known list. The Arabic writing has so distorted the spelling that many names are almost unrecognisable, and it is only by carefully observing the possible mistakes which can be made by misreading certain letters that many names, which at first sight appear a mere jumble, are found to be fairly accurate transcriptions of the Greek. One or two points are noticeable. The dynasties are not divided, the names of the kings running on consecutively. The Persians are omitted completely, Amyrtaeus of the XXVIIIth dynasty follows directly after Amasis II, and he and his four successors are said to be Babylonian, while Nectanebo I and his two successors are called Assyrian. "The Kingdom then passed to Alexander, son of Philip the Greek" (نَدِيلِيَّس الْبُوَّانِي). The variation in the lengths of reigns cannot, I think, be accounted for by misreadings or by mistakes in copying. The MS. from which this list is taken is therefore not the same as those copied by Africanus or Eusebius. For comparison with the Arabic I have given Africanus' list, with the variations from Eusebius and Syncellus where they agree with, and Africanus differs from, the Arabic, both in names and lengths of reigns. In Africanus there appears at the end of the XXIIIrd dynasty a king called Zet, with a reign of 31 years: this king does not appear in the later copyists, nor in Maqrizi, who passes directly from Fsamûs (Fasameres) to Aufainuas. Prof. Petrie has suggested (ANCIENT EGYPT, 1914, p. 32) that Zet means only a doubtful quantity, which is unassigned. The reign of Aufainuas, whom I equate with Bocchoris, is given by Maqrizi as 44 years: this agrees with Eusebius and Syncellus, but not with Africanus; in short, Maqrizi's dates agree usually with Eusebius when they differ from those of Africanus. This, however, is not the case at the end of the list. Africanus ends the XXIXth dynasty with Psammuthis 1 year, Nephorites 4 months; Eusebius gives Psammuthes 1 year, Mutheis 1 year, Nephherites 4 months; Maqrizi differs from both, Fsamut 2 months, Mutatus 7 years. The dates of the XXXth dynasty differ in all three lists, but Maqrizi keeps closer to Africanus than to Eusebius, for his total is 38 years for

the whole dynasty, which is the same as Africanus. The reigns of Nafatanebush (Nectanebo I) and Tus are given respectively as 13 and 7 years, making 20 years for the two kings. Africanus has the same length of time but divides it differently, giving 18 years to Nectanebo and 2 years to Teōs.

It seems then, that Maqrizi, though he lived as late as the fifteenth century, had access to some list of kings which has not survived; a list which had been unintelligently copied, as witness the Diospolites of the XXth dynasty, transformed into a king called Diusqulita, but which is obviously the whole of the third book of Manetho.

It is possible that some of the earlier Arab historians who wrote on Egypt may also have recorded historical facts which would be worth investigating.

M. A. MURRAY.

THE ORIGIN OF

THE literal meaning of the expression is "To grind, or rub, the face," the figurative meaning is "to greet," when it is often translated as "Hail!" for it is the usual mode of addressing a god, or a king in his divine aspect.

The ultimate origin appears to be the African salutation by the rubbing of noses. This is clearly indicated in the Pyramid Texts (T 289) "He [the god] greets thee" (lit.: he smells thee), the determinative of the two noses in close proximity showing the manner of greeting. This suggestion is borne out by the relief sculpture of Senusert I being embraced by Ptah; the position of the two faces indicates very clearly the ceremony which is being performed. With this explanation it is possible to understand how the expression "to rub the face" comes in the end to mean nothing more than "salutation."

THE DERIVATION OF THE NAME THEBES.

THE name of the New Kingdom capital of Egypt was written                                                                                                                                                                        

M. A. MURRAY.

REVIEWS.



Introduction à l'étude des Hiéroglyphes. By H. SOTTAS and E. DRIOTON. 8vo. 195 pp. 4 plates. (Geuthner, Paris.) 1922.

This book is, as its title implies, an introduction only to the study of hieroglyphs; it is, therefore, concerned only with the actual signs, their origin, their use, and the method of reading and writing. All questions of grammar and construction are very properly omitted. The book is divided into two parts: the first deals with the system, the second with the history, of the hieroglyphs. It is the second part which is the most interesting, for the authors have collected together a mass of information, beginning with the theories of the ancient Egyptians themselves concerning the origin of their own writing: then follows a chapter on the theories propounded by the Greek authors, another on the opinions of the Christian Fathers, and finally a chapter on the decipherment. There is no other book which gives so clearly the history of the knowledge of hieroglyphs. Every chapter in both the first and second parts ends with a short bibliography of the subject, so that the student is thus enabled to pursue the study much further. A sign list and some exercises in translating and reading conclude a most useful book.

M. A. MURRAY.

Vestigia Neolitiche nel Nord del Delta. By E. BRECCIA. 8vo, 6 pp., 5 pls. 1923. (Bull. Soc. Archéologique d'Alexandria, No. 19.)—This is the first statement of any early remains in the lower Delta. At Kom el Qanater, $5\frac{1}{2}$ kiloms. S.S.W. of Abu Hommos, 40 kiloms. from Alexandria on the line to Cairo, lies the lower part of a mound of ruin. In this have been found pieces of flint knives, flakes and scrapers. Compared with the forms found in the lower part of the town of Abydos, they all agree in pointing to the middle of the 1st dynasty. The pottery is round bottomed, and differs from all the dated pottery at Abydos.

This discovery seemed so important that the site was visited to see if any further connections could be reached. It is a much denuded town site, the mound dug away to below the present level of the fields. The ground is nearly all occupied with houses and huts and Bedawy tents. There is no trace of stratification or sherds in the uniform mud soil. Some Greeks, settled for business there, in a large iron shed, pointed out the place where flints and pottery had been found; but there was no indication in the mud soil formed of decomposed brick.

Various other sites in the district were looked over, but all were of Roman age. Kom Siheib, much cut away with large red brick walls exposed, and a wely on the top. Kom Farshut, nearly all cut away, 1st and 2nd century A.D. Kom Sauwan, straggling Roman mounds, nearly removed, no trace of flints to be seen; some intelligent men agreed that they did not know why it was so called, as there never had been flints there, when the mound was high. The mounds north of Mamal el Qizaz station were also searched. Karyun, Kom el Hamman, Kom el Giza, Kiman el Nashw, Ezbet el Karashi, and Kom el Khabiri. Karyun and Kom el Hamman is a widespread Roman town site, much burnt, where bricks are dug for building and for *homra*.

PERIODICALS.

Académie des Inscriptions, Comptes Rendus, Sept.-Oct., 1922.

LACAU, P.—*Rapport du Service des Antiquités*, 1921-2. At Dendereh all the surroundings of the great temple are being cleared. The smaller temple of Isis, which has reliefs on the present outside, proves to have been enclosed by a portico around it. One of the paving blocks is a re-used slab with coloured glaze inlaying, here attributed to the Ptolemies (? earlier). The basilica has a triple east end, and the lateral apses have each a side passage to a sacristy beyond. The five chambers correspond to the nave and four aisles.

At Karnak between the two pylons (VII, VIII) west of the Sacred Lake, a fine granite naos of Senusert I is found. South of these the pylon of Horemheb proves to be built of sculptured blocks of Akhenaten, and it is intended to remove the pylon and restore the earlier work. In the pylon III, the east side of the great hall, it is found that Amenhetep III used up for foundations the blocks of an alabaster chapel of Amenhetep I, and these will be removed, as the work is very good, and was buried before the puritanism of Akhenaten.

At Saqqareh the works of the VIth dynasty are being cleared, while all the early material for which our history is waiting is left untouched, and will not be permitted to be examined. The deep pits of the tombs are being opened, as the sepulchral chambers are found to be inscribed. To the north of the pyramid, burials of the Xth-XIIth dynasty are found, with the usual groups of servant figures and models of working parties.

At Aswan the obelisk in the quarry has been cleared, showing the original design as 46 metres long, half as large again as any now known. The granite proved so faulty that a reduced scheme was outlined.

At Asyut a great tomb on the lower level was cleared, where six hundred stelae to Upuat were regularly deposited. Where only painted the design has perished, the carved stelae are in good state.

M. Lacau says that the discoveries are almost too much—this before Tutankhamen! “To find is well enough, but we must publish, and that is a difficult duty at the present time.” Very true, but it is the first duty of those who find, and it will be well when the publication is insisted on as a condition of continuing excavation.

Académie des Inscriptions, Comptes Rendus, Sept.-Dec., 1923.

GAUTHIER, H.—*Un nouveau décret trilingue Ptolémaïque*. At Tell el Maskhutah was a trilingual decree of the 6th year of Ptolemy IV Philopator (217-6 B.C.). It is a duplicate of a fragment from Memphis, now in Cairo. One face bears a scene and the hieroglyphic text: the opposite face has the demotic, and probably the beginning of the Greek text, which runs along the edges.

A much damaged piece of a duplicate of the Rosetta decree has also been found, to the north-east of Heliopolis.

The subject of the Maskhutah decree is a victory of Ptolemy IV at Raphia over the army of Antiochus III, which gave Egypt control of Phoenicia and Coelo-Syria, as described by Polybius (V, 84-86). The new text states that Ptolemy spent four months arranging his control of the Syrian province. He brought back to Egypt the statues of the gods which had been carried away by the Persians. The priests ordered the erection of a triad of Ptolemy Arsinoe and the local deity in each temple of Egypt. Also a stele in each temple, and a festival on the anniversary of the battle. The stele supplies several dates and details of the ceremonial affairs.

M. MOUTET reports in letters a further clearing of the Egyptian temple at Byblos. Also finding the place of another royal tomb, covered with six courses of blocks, which he hoped to enter in November. Elsewhere he has an alabaster vase with an Egyptian inscription of a prince, whom he dates within half a century of the previous tomb.

M. PILLET reports the discovery at Karnak of a naos of Aimen, dedicated by Senusert I, which had been reused as a basin in the XVIIIth dynasty.

Proceedings of the British Academy, 1923.

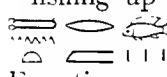
The Fall of Nineveh. By C. J. GADD. 8vo, 6 pp. 1923. (Proc. Brit. Acad.) 1s.

The dearth of annals at the closing years of the Assyrian empire has left many uncertainties. A piece of a tablet, which has been among the myriads in the British Museum, has now given part of the closing scene. It begins in the Xth year of Nabopolassar (616 B.C.), with an account of Assyria beset on all sides by enemies, the power which never befriended any other, and therefore had no friend. The southern provinces were lost, and at last in 612 B.C. Nineveh was taken. That, however, did not end the kingdom, for it continued with the rule of Ashur-uballit at Harran, only to be finally wiped out by the capture of that place in 610 B.C. by the Scythians. The siege of Nineveh lasted from early June till August, and three battles are recorded in the time, agreeing with the account of Diodorus. The detail of the end of the last king Sin-shar-ishkun has been lost, but he certainly died, as the ruler in Harran was Ashur-uballit.

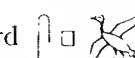
The Egyptian connections are that as far back as 616 Psamtek is said in the new tablet to have sent troops to co-operate with the Assyrians. In place of being dreaded raiders, as fifty years before, they were fellow-sufferers from the Scythian invasion; much as if we allied with Germany to keep back pressure from Asia. Bearing on the Scythian question there are the two great raids of Nekau across Palestine and Syria to Carchemish, in 609 and 605 B.C. There are many difficulties in understanding this Scythian domination. They are usually credited with this lasting from 624 to 596 B.C., the 28 years of Scythian governance of Asia, the 29 years during which Psamtek kept them barred out of Egypt. Yet through this period there seems no trace of any such invaders in the Jewish annals. Psamtek was sending troops to Assyria in 616, Nekau was passing up to the Euphrates in 609 and in 605. Nebuchadnezzar was harrying Judaea in 607 to 588. Yet none of these movements seem compatible with any power, or presence, of Scythians in Palestine. There is much awaiting explanation in this period.

Zeitschrift für Agyptische Sprache, Vol. LVIII, Pt. II, 1923.

SETHE, K.—*Die Sprüche fur das Kennen der Seelen der heiligen Orte* (continued).—This portion of the article deals with Chapter 113 of the Book of the Dead. The sanctuary to which the speaker demands entry is the *nḥn*, which was, according to Sethe, a building in Hieraconpolis. The statement on which the speaker bases his claim is made up of two portions which had no connection originally: (1) a myth concerning the hands of Horus, which were thrown into the water in consequence of a magical curse of Isis. They were rescued by the crocodile god Sebek, at Ra's command, and were preserved as relics at Hieraconpolis. (2) A short account of the allocation of two of the children of Horus to Hieraconpolis, at the request of Horus, so that he may guard them there. There is a corresponding passage in Chapter 112, in which, however, the reason for the allocation of the four children between Buto and Hieraconpolis is different. The two portions are connected by the identification of the two children with the rebellious spirits embodied in the hands of Horus; the further identification of Duamutef and Qebhsennuf and their father Horus with the “souls of Hieraconpolis” brings this chapter into line with the other chapters of the group (A.E., 1923, I).

The story of the loss of the hands of Horus may have some bearing on the mutilation (*διαμελισμός*) mentioned by Plutarch (*Is. et Os.* 20), in a passage which follows the quarrel between mother and son (*Ibid.* 19). There may also be a connection between the name of the town which arose in consequence of the “fishing up” of the hands (*Tr.rmw* or *Ty.rmw*) and that of the Delta town  on the Piankhi stela. The name also suggests the Lower Egyptian nome capital *παπρῆμις* (in Egyptian “the [land] of the fish”?), where the mythological basis of the great feast was a conflict between the god and his mother.

The final sentence reads, “not to be said on eating pig,” and thus connects Chapter 113 with Chapter 112, in which the taboo on this animal is explained.

KEES, HERMANN.—“*Anubis Herr von Sepa*” und der 18. oheragyptische Gau.—The reading of the name of the eighteenth Upper Egyptian nome as “Sepa” rests on the view that Anubis bore the title “lord of Sepa” in his capacity of chief god of this nome. There is every reason for considering this reading to be incorrect. The early god of this nome was a falcon god, whilst the later partial supremacy of Anubis was due to the spread of the Osiris cult. The word in the epithet is always written phonetically in the early examples, and has certainly the sound value *Sp*:, whereas the nome sign is always written ideographically by a bird sign, which is not the *p* bird. It is certain that the form of the name does not correspond to the regular writing of the word  “to cause to fly,” from the O.K. to the N.K. In the oldest example a fragment of a nome list dated to the IVth dynasty, the ordinary god sign  is used for the nome sign. The same sign stands for the god in the Pyramid Text ritual concerned with purification formulæ, in which four gods are needed, but in later versions the  sign is used. A somewhat later (unpublished) nome list from the sun temple of N. User-Ra shows a variant  , the god on his sacred “boat,” a form in

which the falcon god was widely worshipped on the East bank of the Nile. The so-called boat is probably an archaic standard form. Probably many local names were concealed in this ideogram ; probably one of these was *cutj* of Antaeopolis. The sign with outspread wings  first appears in the nome list of Sety at Abydos.

The epithet "lord of Sepa" is the one which is least often used in Old Kingdom prayers to Anubis for a good burial, and it takes the least important place in association with other epithets. The absence of the place determinative  in early examples and the constant presence of the sign  indicate that the word contains the same root as does  *Sp.t* " nome." If this be so, then the title would have a general meaning which would make it appropriate for wider use than in a local cult, like the epithet "on his hill." The occasional use of the sign  in the Middle Kingdom was obviously influenced by similarity of sound with the name of the god *Sp.*, whose name    occurs in the Pyramid Texts in charms against snakes and other venomous animals. It is clear from several texts that this god was worshipped at Heliopolis, and thus became associated with the Ra circle, and consequently became fused with the gods of the dead of the Osiris faith. We may assume thus that the Osiris cult was responsible for bringing *Sp.* into close association with Anubis. There was no linguistic difficulty in the way, as the names were pronounced alike.

RUSCH, A.—*Die Entwicklung der Grabsteinformen im Alten Reich.*—This paper is an attempt to bring the various forms of Old Kingdom gravestones into chronological order. The peculiarities of dated stelæ are arranged in tabular form for use in placing stelæ of unknown date. A list of religious formulæ and of titles of Anubis and Osiris, based on order of frequency, is also given for use in doubtful cases.

The usual form of false door in the best period of the Old Kingdom is a combination of the slab bearing a representation of the deceased before an offering table, and of the recess door. Both components had a separate development before their combination. Some of the distinctive features of the false door may be noted here.

Originally the false door and slab were not shut off from the outer wall ; then came a connection by means of the upper lintel, whilst the next step was the inclusion of the outer wall in the framework of the false door in the time of Mycerinos. With the end of the Vth dynasty appears the form with three jambs. In the VIth dynasty the corniced door is distinctive. In the early part of the Vth dynasty the extension of the jamb inscriptions at the expense of the size of the figures is a valuable means of dating. About the middle of the Vth dynasty it was customary for the inscriptions and figures of corresponding jambs to be identical. Throughout the IVth and almost always at the beginning of the Vth dynasty the jambs bore only name and titles : then offering texts appeared, and were the rule up to the middle of the VIth dynasty. It was customary in the VIth dynasty, particularly in the case of corniced stelæ, for each line in the jamb inscription to end with name and figure, or with name only.

Up to the middle of the IVth dynasty the lintel had only one line of inscription, the length of which might need accommodation to the available space by a zigzag arrangement of the text. Later, and increasingly throughout the Vth and

VIth dynasties, several lines occur. At the beginning of the IVth dynasty the contents of the lintel are names and titles ; with Khufu and Khafra begin offering texts on one lintel, at least, and with the Vth dynasty these occur on both.

It is difficult to distinguish between corniced doors of the late Vth and of the first half of the VIth dynasties, but from the middle of the VIth dynasty deterioration in style was very rapid, so that defective execution and small size make differentiation easy. In the Intermediate period, the false doors are no longer part of the wall, but have become independent gravestones, and are precursors of the Middle Kingdom steles. The most important peculiarities of the late VIth dynasty are two innovations which are almost constant : the presence of two eyes on the central recess, inner jamb or lower lintel, and of the representation of two bolts on the recess.

KÖSTER, AUGUST.—*Zur Seefahrt der alten Aegypter*.—The author contends that the ancient Egyptian must have been a highly able seaman. The dangers and difficulties of the Red Sea prove that the voyage to Punt was an amazing feat. Using every advantage of wind and current, a voyage to the south coast of Arabia or Somaliland from Thebes and back must have taken a year, whilst ships which rounded Cape Guardafui needed a year more. There is no greater proof of the antiquity of Egyptian seafaring, and of the high stage of its development in ancient times, than the fact that expeditions to Punt were a regular institution in the Old Kingdom. The first seafaring ships that are known to us from the temple of Sahura show a long experience of the requirements of the sea. That the overseas trade with the Mediterranean lay partly in Egyptian hands is shown by the requisition by Thothmes III of a merchant fleet for the transport of his army to Syria.

RANKE, HERMANN.—*Keilschriftliches*. This is a continuation of the article on cuneiform renderings of Egyptian names in *Zeitschrift*, LV1 (ANCIENT EGYPT, 1923, III).

(4) *Minpahtaria* =

(5) *Piriñnawa* or *Pariñnawa* =

(6) *Riam̄sja* *

(7) *On Ana* =

(8) *Šutahapšap* =

(9) *W [ašmua] ria-naṣta* = *

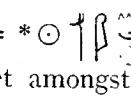
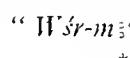
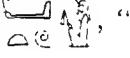
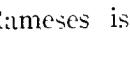
(4) The name of Rameses I occurs as *Minpahtaria* in two publications of texts. One of these publications was based on a photograph, and it seems probable that the extra *r* in the name is due to a misreading of a sign, whereas the correct reading would give the required form *Minpahtaria*.

(5) Text I, 19, mentions an "Elder" named *Piriñnawa*. In letter 118 the variant *Pariñnawa* is borne by the envoy of an Egyptian prince to the Hittite king. The meaning of the name

(6) Is an example of the substitution of a diminutive form of a name (*cf.*  for Men-Kheper-Ra in the previous article). In a letter to a queen of the Hittites, Queen Naptera refers to her husband Rameses II as *Riamasja*. The name occurs many times in official use as *Riamas̄ja*. It is true that the Egyptian equivalent  = *R̄.m̄.s.y has not been found, though there is an instance of an even more abbreviated form. A workman sentenced by a vizier "complains of the vizier"  "to Mesy" (*Salt*, 124, 2, 17 f.). This name must, therefore, be a pet name for Rameses II, as appeal against a vizier could be made only to the king.

(7) Shows the disappearance in the time of the XIXth dynasty of the *w* in the sign  = *iwn*, at any rate in the name of the town.

(8) In a letter to King Hattušil, Šutajapšaþ, a (son) of the King of Egypt, addresses the Hittite king as "my father," and congratulates him on the conclusion of the treaty of alliance. The letter can thus be dated exactly to the twenty-first year of the reign of Rameses II, and must have been written by one of this king's sons. The contents indicate the Crown Prince as the author. The cuneiform rendering must represent the Egyptian name *S̄th.yr.hp̄s.f*, "Seth is on his sword," which seems to have been a variant of the name *Amen.h̄er.khepeshef*, "Amen is on his sword," of the "eldest" [= eldest surviving] son of Rameses II. Sethe cannot explain the change in name, but suggests that if both forms were in use at the same time, that the name containing Seth may have been used in compliment to the Hittites.

(9) *W* [ašmu] *ria-nahtā* = * The name "Rameses II is victorious" is not known as yet amongst Egyptian names, though similarly-formed names occur, such as , "Wsr-m̄st-R causes to exist"; , "Ainentotep III is victorious"; , "Rameses is victorious."

SCHÄFER, HEINRICH.—*Flachbild und Rundbild in der aegyptischen Kunst*. This article is intended to form the seventh and last chapter of a new edition of the author's book, *Von aegyptischer Kunst* (2nd Edition, 1922). It deals with the principles and methods of Egyptian sculpture in the round, and demonstrates the close relationship of Egyptian sculpture and drawing. For Lange's law of "frontality," based on symmetry, Schäfer substitutes a law of "straightness of direction" (*Richtungsgradheit*). In Greece, sculpture in the round freed itself from this law at the same time that drawing in perspective ousted "representative" drawing (*i.e.*, the drawing of an object not as it is actually seen, but from an image mentally constructed from its main aspect or from a combination of characteristic aspects). This change is not achieved by all peoples at a certain stage of development, but only by those who are directly influenced by Greek art of the fifth century B.C. In other words, the change in the history of sculpture and drawing is not the result of a law of development, but of a definite historical event.

MISZELLEN.

SETHE, K.—*Zu A.Z.*, 57, 88. Sethe contributes some supplementary remarks to Spiegelberg's article on the strategus Pamenches in *Zeitschrift*, LVII (ANCIENT EGYPT, 1923, I). The name Hierax supplies the clue to the correct understanding of the name or which should be read *Kópax* “raven,” not Georgios. Unfortunately the Egyptian equivalent of this common Greek name, Korax, is not known; from the Coptic it must have been Pabōk, a name which occurs in Graeco-Roman times.

SPIEGELBERG, W.—*Zu dem Feuerbohre*. The author distinguishes between *md(w)*, “fire stick,” and *dʒ*, “fire stick apparatus.” He considers that the use of *md(w)* for *mdw* “word,” “to speak,” is due to sound transference.

SPIEGELBERG, W.— als Determinativ. occurs in Pyramid 1215 c. as the determinative of a material in the word *dʒj(w)*, which is elsewhere determined by . The passage in question is to be translated “she brings her material.”

SPIEGELBERG, W.—*Der Architekt Bnr-mrw.t*. A stela now at Grenoble belonged to the architect *Bnr-mrw.t*. The same name and titles occur on other objects, all undated. A Karnak statue of the architect shows the head of Princess Merytamen peering out from his lap, and thus supplies the date, as the princess was a daughter of Thotmes III. With this dating agrees the representation on the upper semicircle of the stele of a side view of the sun disc with the eye of Horus—a representation which is particularly common in, though not (according to Spiegelberg) absolutely characteristic of, this reign.

SPIEGELBERG, W.—*Der heliopolitanische Hohepriester Chui*. Ebers Papyrus 63 names “the greatest of the seers,” *Hawy.y*, as the discoverer of an eye-paint. The grave of this man has been found recently at Māṭārīje, along with graves of other Heliopolitan high priests of the Old Kingdom. For the name *Hawy.y* of the Ebers Papyrus is certainly identical with the name *Hwy* which was the “beautiful name” of the Heliopolitan high priest *Hw.n Hr*.

SPIEGELBERG, W.—*Die Datierung des Turiner Totenbuches*. The Turin Book of the Dead, published by Lepsius, has long been ascribed to Saïte times. Spiegelberg considers that it is Ptolemaic, on the evidence of for *t* in the name of the owner's mother, and of a gloss in demotic which is undoubtedly Ptolemaic.

SPIEGELBERG, W.—*Eine Glocke mit demotischer Inschrift*. A bronze or copper bell found at El Hibe, 6 cm. in height, and about 100 grs. in weight, bears a demotic inscription which reads, “Sebek lord of *Tny* give life to *Dd-Hr*.” The inscription belongs to the first century A.D. The belief that bells can ward off evil is well known. The inscription is worded exactly like those on bronze statuettes of gods and sacred animals, so that bells also seem to have been charms.

SPIEGELBERG, W.— als Bezeichnung der Kite. Spiegelberg quotes a passage from Horapollo in which occurs this writing for *Kd.t*, the Kite weight which was equivalent to a 2-drachma coin.

SPIEGELBERG, W.—*Κομωᾶπις*. In this name is to be recognised the Egyptian name *Gm* = *w-H̥p̥y*, “*Apis has been found*,” which occurs frequently in Saïte times. The correct hieroglyphic writing is comparatively rare. The same construction seems to be found in *Κομωόρ*, which Spiegelberg interprets as *Gm* = *w H̥r*, “*they have found Horus*.”

SPIEGELBERG, W.—*Der Gott Kolanthes (Klnd)*. One of the demotic inscriptions of Ptolemais (el-Menschije) mentions a god *Klnd-p̥-lrd*. The personal name *Ko(λ)λάνδης* must represent this god.

SPIEGELBERG, W.—*Der Gott Χεσπισχις*. A Greek ostracon in the Strasburg Museum bears the theophorous name *Ηετεχεσπισπισχις*. The Egyptian prototype is the New Kingdom *Khnsu-p̥-r-shr-m-Wȝ.t*, “*Khonsu, who is mighty in Thebes*.” Only *m-Wȝ.t* is missing, and this ending is occasionally omitted elsewhere.

SPIEGELBERG, W.—*Die Deutung von σβω bei Horapollo I 38*. Horapollo translates the Egyptian word *σβῶ* correctly as “*teaching*” (*παιδεία*), and gives a second meaning, “*abundant food*” (*πλήρης τροφή*). Spiegelberg traces the latter rendering to *wsb*, *sb(w)*.

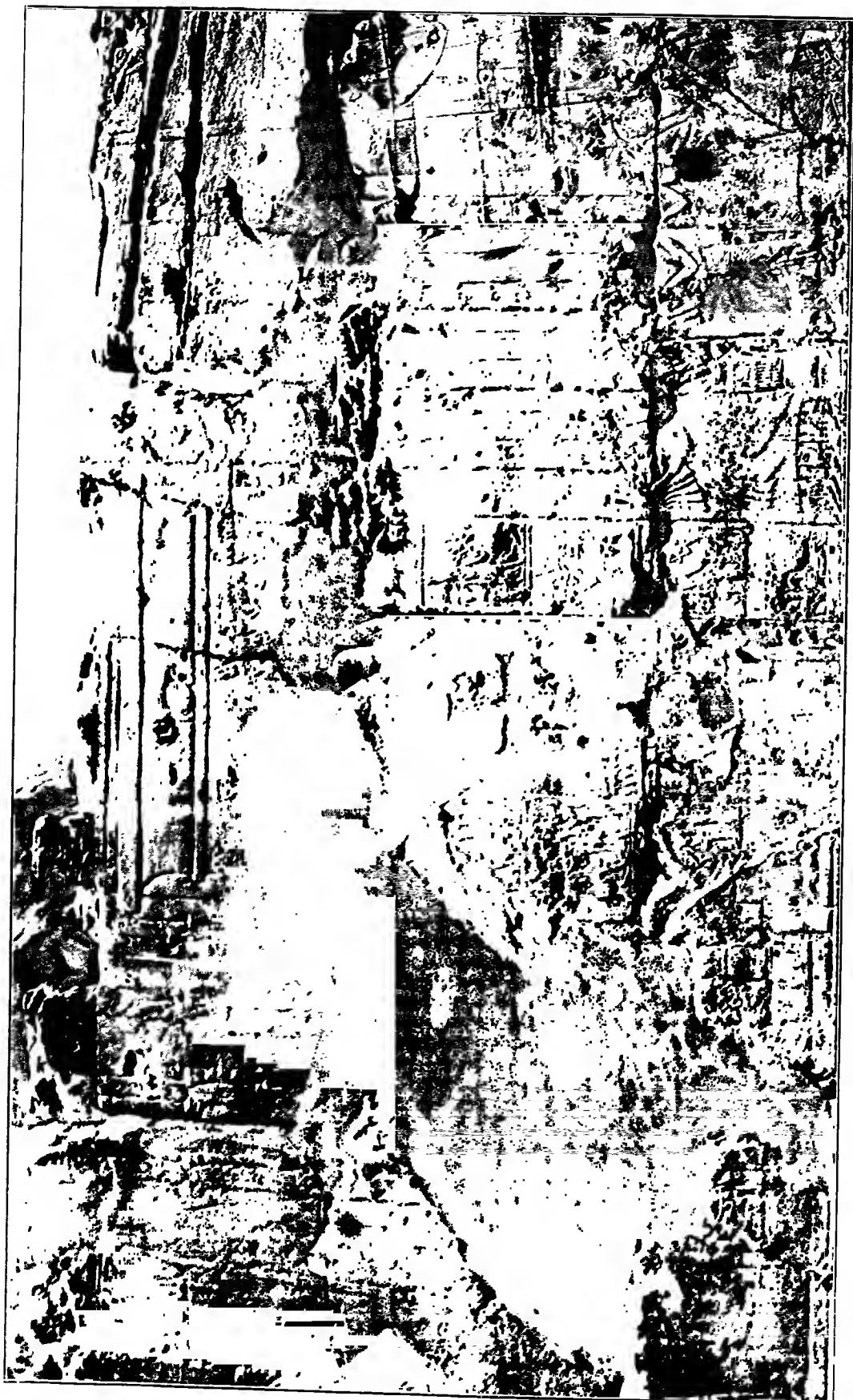
SPIEGELBERG, W.—*Der stat. constr. οὐ- vor folgenden Fragesätzen*. Several examples are given of the use of this form of the verb *οἴμε*, “*to find*,” meaning “*to know*,” followed by an interrogative sentence.

SPIEGELBERG, W.—*Knm “einwickeln.”* This word occurs in Pyramids 1197b, meaning “*to wrap*,” “*to swathe*,” “*to clothe*.” The passage may be translated: “(This) N. found the gods wrapped (  ) in their clothes.” The word is preserved in Coptic in **ολοι** **αι** (S) **ολοιλει**, **κλοιλει** (B) “*to swathe*,” where **ολοι-**, **κλοι-** represents the old root *Knm*.

SPIEGELBERG, W.—*Der Ausdruck εβοτ ἡροοτ*. In Coptic, the expression **εβοτ ἡροοτ** “*month of days*” may replace **ε.βοτ** “*month*.” The same expression, **εbd n h̥rw**, is found in New Egyptian. The genitive *n h̥rw* follows the noun in other Coptic expressions, *e.g.*, in “*ten years*,” “*yesterday*” and “*to-day*.”

SPIEGELBERG, W.—*Eine merkwürdige Falschung*. This obviously faked votive tablet was evidently copied from a real one. The dedicatory is the *stm̥s P̥-šd*, of whom there are several records, though the original of this particular fake is not known as yet.

L. B. ELLIS.



4- PYLON OF AMENHETEP III AT KARNAK, SHewn IN TUTONKHAMEN'S PROCESSION, LUXOR TEMPLE.

ANCIENT EGYPT.

ORIGIN OF THE GREAT HYPOSYLE HALL AT KARNAK.

There seems to be a good deal of uncertainty in the text and guide books as to the name of the founder of the Great Hypostyle Hall at Karnak. One authority says that Ramesses I set up one column, Seti I, 79, and Ramesses II, 54; another says that it was founded by Haremhab and so far finished in the time of Ramesses I that he was able to put his name on one column;¹ a third merely states that Seti I used the pylon ("No. III") of Amenophis III as the back to his Hall of Columns.

Though future excavation and possibly fresh documentary matter may settle the attribution once and for all, we have already two pieces of evidence which, to my mind, throw a great deal of light on it. Up to the present, I have not seen them brought forward together.

In the inscription of Amenophis III on the east face of Pylon III at Karnak, shewn in Fig. 1, he tells how magnificently he decorated it. The inscription is very imperfect as the pylon is in ruins, only the ends of each of its 71 columns of inscription being left. After a long speech of praise to Amen-Rê', followed by an account in general terms of his gifts to the god, the king describes the decoration of the pylon. Columns 53-57 are as follows (BREASTED, *Ancient Records*, II, p. 368).

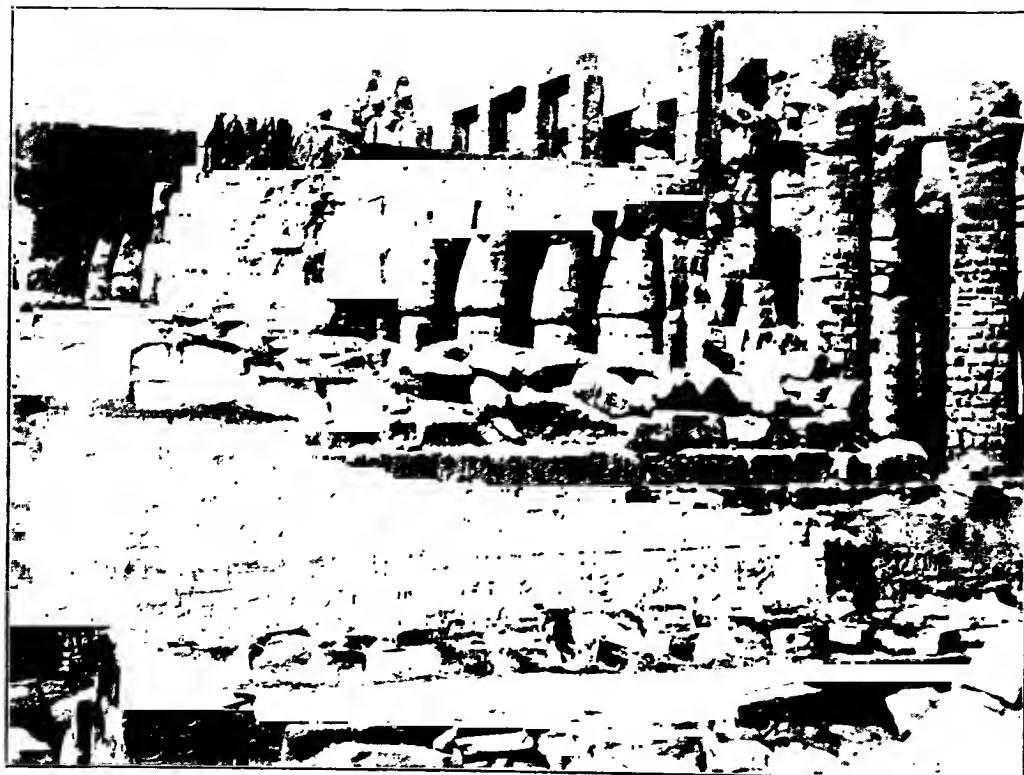
- (53)———great doorway of electrum.
- (54)———of the land that sees it, every land [———].
- (55)———as leader of them in
- (56)———of new cedar of the royal domain.
- (57)———august———of electrum, obelisks
- (58)———.....

Fig. 2, at A, shews the lines containing the word for obelisks,  *tȝn*. The determinative and dual sign were at the beginning of the next line, and therefore missing, but the word is quite certain. There is no reason to believe that these

¹ I have vainly hunted for hours for the cartouche, or other name, of Ramesses I, armed with the names of all the Ramessides arranged in tabular form. In the superimposed cartouches, I am convinced that it does not occur. M. Munier, of the Cairo Museum Library, has kindly enquired into this matter for me, and finds that the original statement comes from Mariette Pasha, in his *Karnak, texte*, p. 24, where he remarks, "Ramsès Ier a commencé la décoration du pylône, dont il avait déjà conçu le plan. Bien plus, le travail de la Salle Hypostyle était commencé et une colonne au moins était debout quand Ramsès Ier mourut." It is possible we have here a slavish copying by subsequent writers without verification.

obelisks were the miniature ones which were placed on the barge of Amûn, since they would necessarily follow a description of such a barge (cf. Breasted, *Ancient Records*, p. 359). Prof. J. H. Breasted, in his translation of the inscription of Pylon III, appends the following footnote on the subject of the destination of these obelisks, which no longer stand before the pylon:—"These obelisks probably stood in front of this pylon (III); they must have been removed to build the great hypostyle; the only obelisks of Amenhotep III now known at Karnak are in the northern temple, but only fragments have survived (Lepsius, *Denkmäler*, Text III, 2). Perhaps they stood on the two bases referred to in Baedeker's *Egypt*, 1902, 253." (Fig. 3.)

The second piece of evidence is in the colonnade of Luxor Temple where Tut'ankhamûn, in the celebrated reliefs of the procession (probably representing the rejoicings at the return to the old worship of Amûn after the 25 years' heresy),



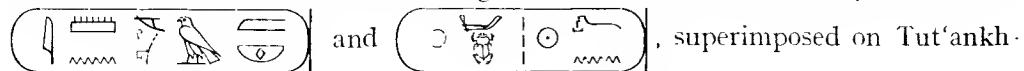
I.—INSCRIPTION OF AMENHETEP III, EAST FACE PYLON III, LUXOR

gives two views of the main pylon at Karnak, which at that time was Pylon III, with great detail as regards the gateway and the eight flagstaves with their clamps; but no obelisks are shewn. A photograph of this part of the relief is shewn in Fig. 4, frontispiece.

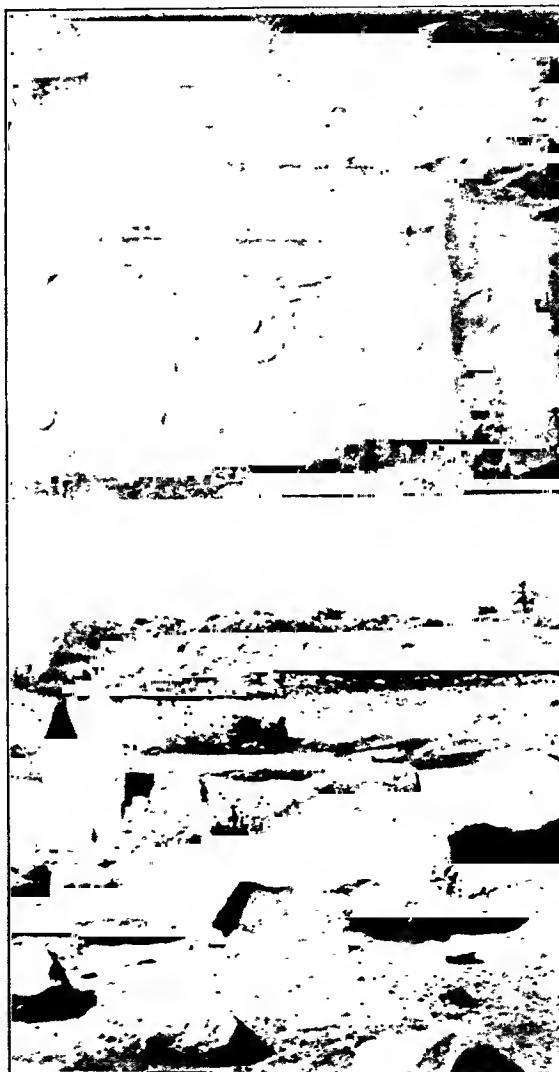
During the heresy, there was certainly no work done in the temple of Amûn, yet the obelisks once there—if we are to believe the pylon inscription quoted—have disappeared. There is no reason to believe that they were thrown down by Akhenaten, as the others were left standing and were not tampered with except in removing the name of Amûn.

I think that it is generally admitted that the sculptures on the walls of the Great Colonnade in Luxor Temple are the work of Tut'ankhamûn.

and not of Haremhab, but Fig. 5 which was taken at the moment the sun touched the cartouches of the king, and which shows Haremhab's names,



and (O), superimposed on Tut'ankh-amûn's (I D), leaves no doubt on this attribution. The two 's and the at the bottom of the left-hand cartouche are still clearly visible.



2—INSCRIPTION, PART OF FIG. 1.

3—BASE OF OBELISK, KARNAK.

The only reasonable conclusion we can come to is that Amenophis III took down his own obelisks from before Pylon III at Karnak. We will defer for a little the discussion on the destination of these obelisks, confining ourselves to the possible reason for the king's action. The only reason which, to my mind, would lead the king to remove a pair of obelisks from the premier position in Upper Egypt would be that he had a further building in his mind in front of the pylon.

This could be no other than the Great Hypostyle Hall, or at least its two axial lines of columns, a piece of work far more in keeping with this king's character, than that of Haremhab, since the latter's building activities were small. We do not know that he even built a mortuary temple, and all that he seems to have done at Karnak is to have converted a solar temple of Akhenaten into his southern pylon, and to have restored the southern gateway. Backed by the evidence already brought forward, the attribution becomes almost a certainty when we remember that the Great Colonnade at Luxor Temple was at least begun by Amenophis III. Again, I believe that this is a generally accepted fact, since there is nothing known about Tut'ankhamûn which would lead us to suppose that he would undertake and complete such a gigantic piece of work.

Assuming, then, that Amenophis III, at his death, had made considerable progress in what is now the Great Colonnade at Luxor, and had at least laid the foundations of his new building in front of Pylon III at Karnak, it might be well to speculate whether the new buildings in *both temples* were intended for colonnades like that at Luxor or hypostyle halls as at Karnak. Excavation in the floor of them may throw some light on this point, especially outside the screen-walls of Luxor Colonnade. It has been supposed by some that the original idea of Amenophis III at Luxor was for a hypostyle hall similar to that of Karnak, and that Tut'ankhamûn rather than complete such a gigantic piece of work, finished it quickly by putting screen walls on either side of the central lines of columns which he had completed. It seems more likely to me that the inverse is the case, and that the original idea in both temples was for a simple colonnade with screen walls and that Seti I at Karnak transformed an either complete, or partially complete, replica of the Luxor Colonnade into the Great Hypostyle Hall as we now see it. In Karnak, where each successive king built additions irrespective of whether they were suitable or not, any form of building might be expected, but at Luxor the case seems to be different. Here the temple up to the time of the heresy was of one date, being entirely built by Amenophis III, though possibly on the foundations or plan of an earlier temple. I doubt very much whether King Amenophis III would have added a broad, dark, impressive hall in front of the open forecourt of his own temple; a colonnade merely connecting two gateways, however, is not so unlikely. It is, however, rather unwise to reason on the tastes of a people who painted in gaudy colours statues and the most exquisite sculptures, and even gold-plated the rough flagstaves which stood in front of the pylons. A further indication that colonnades was intended is gained by considering the method by which a series of columns were erected. It is generally believed that the corresponding drums of all the columns required were laid simultaneously and that earth was filled round them, with a ramp leading up to the new level, and a further series of drums added to each, continuing the process of filling until the roof-level was reached. Had Tut'ankhamûn found a hypostyle hall in process of construction at Luxor, all the columns would have been at the same level, and it would have been a very big undertaking indeed to transform it into a walled colonnade. To complete a simple colonnade would be a piece of work more likely to have been done by him, especially if Amenophis III left it nearly finished. Although Haremhab and Ramesses I are, to my knowledge, not mentioned in connection with the building of the Hypostyle Hall at Karnak, I think it is fairly sure that they did carry on the work, since Haremhab at any rate—a fervent devotee of Amûn—would not have left an unfinished building at the main gate of Karnak, while he built a pylon and restored the great southern gateway. It seems likely that, at the death of

Ramesses I, the colonnade was practically complete. I admit that my belief, that colonnades and not hypostyle halls were intended, is based on rather slender foundations, and that it may be disproved by those who have more leisure and opportunity than I to give the problem a detailed study.

Returning to the destination of Amenophis III's obelisks at Karnak; we can at once rule out the possibility that they were transferred to the temple of Amenophis III dedicated to the god Monthu, which lies in a separate enclosure to the



5.—HEAD OF TUTONKHAMEN, CARTOUCHES USURPED BY HOREMHEB.

north of the main temple there. The bases of these obelisks, one of which is given in Fig. 3, shew that the obelisks themselves were not more than some 55 feet high—that is, smaller than the pair of Tuthmôsis I *behind* Amenophis III's pylon. Not only would they have been too small for such a large pylon, but the tendency of successive kings seems to have been to erect obelisks larger than their predecessors unless there was a good reason to the contrary. It is very unlikely that a king

like Amenophis III would have put smaller obelisks than those of Tuthmōsis I and III at the main entrance to Karnak temple. If he had taken them down and left them lying before the pylon now known as Pylon II, Seti I would certainly have erected them, and even if Seti I had died before they could be erected, Ramesses II would have usurped them and left them there with his colossi; it is very unlikely that Ramesses II would have removed them from here to his addition to Amenophis III's temple at Luxor. There are, of course, such possibilities as the destruction of these obelisks, or their removal to other towns, but there are two contemporary records which, at least, offer material for consideration. The black granite stele now known as the "Israel Stele,"—which was removed from the temple of Amenophis III behind the colossi by Merneptah, describes the decoration of both Pylons of the Colossi Temple and of Pylon III at Karnak, but no obelisks are mentioned in connection with either. The only indication as to its date is that it is after Amenophis III's first victorious campaign into the land of Kush, which occurred in the fifth year of his 36-year reign. Another stele of sandstone, of gigantic size, now lying broken behind the Colossi, describes the mortuary temple of Amenophis III which once stood there. In this, unlike the Israel Stele, it is distinctly stated that the pylon of this temple on the *west* bank was furnished with obelisks. It appears that this stone is later than the Israel stele since in the latter the colossi are not mentioned¹ (Breasted, *Ancient Records*, II, p. 356), whereas in the sandstone stele they are very much praised, and are described as "statues of a mountain of gritstone. When they are seen in their places, there is great rejoicing because of their size." (B.A.R., II, pp. 369-370.)

A conclusion that meets all the observed facts is that Amenophis III, after having begun on the foundations of the new building in front of Pylon III at Karnak, took his obelisks over to his mortuary temple on the west bank, having possibly ordered a new pair to be cut for the new main pylon or gateway, which was either finished or converted by Haremhab, Ramesses I and Seti I, and is now Pylon II. The sequents of events in the three temples may have been somewhat as follows, though I give my proposal with a good deal of diffidence:—

- (1) Amenophis III completes his mortuary temple and the third Karnak pylon not long after the fifth year of his reign.
- (2) The stele, now known as the Israel stele, is set up in the mortuary temple before the colossi on the west bank or the obelisks of Pylon III had been erected.
- (3) The obelisks of Pylon III are set up.
- (4) The inscription of Pylon III is cut.
- (5) An interval of some 20 years elapses, during which period the Luxor temple is built and the Colossi erected.
- (6) The colonnade of Luxor Temple is begun.
- (7) The obelisks from Pylon III are taken down and sent over to the mortuary temple behind the Colossi.
- (8) The great Sandstone stele is set up in the above temple.
- (9) The foundations, at least, of a colonnade in front of Pylon III are laid.
- (10) Amenophis III dies, the Luxor Colonnade being nearly finished.

¹ To me it is incredible that such monuments could be included in the description "It is numerous in royal statues of Elephantine granite and of *costly gritstone*, established as everlasting works."

- (11) 25 years' heresy, during which no works are done for the temples of Amün.
- (12) Tut'ankhamûn finds the Luxor Colonnade almost complete and inscribes it with the procession scenes.
- (13) Haremhab usurps Tut'ankhamûn's cartouches in the above reliefs.
- (14) ¹Haremhab and Ramesses I carry on the colonnade begun in front of Pylon III ; it is not clear how far they finished it.
- (15) Seti I and Ramesses II convert the finished or unfinished colonnade of Amenophis III into the Great Hypostyle Hall.

As to the final destination of the two obelisks which had been removed to the west bank, they may now lie, in fragments, below the fields behind the Colossi, and future excavation may reveal them. Another possibility is that Ramesses II may have removed them back to the east bank and placed them in front of the Pylon which he added to the Luxor temple, having re-cut the faces and omitted to mention whose they originally were. Since Ramesses II's son, Merneptah, used the blocks from the Colossi Temple to build his own mortuary temple it is not unlikely that the temple of Amenophis III had already fallen into ruins during the later years of Ramesses II's long reign. The differences in height (7 feet) between the pair that once stood at Luxor may be due to the vicissitudes of handling the obelisks. Beknekhonsu, who was responsible for the work of Ramesses II at Luxor, says on his statue that he erected the obelisks for Ramesses II, but he does not mention anything about their quarrying or transport. All this, however, is pure supposition.

R. ENGELBACH.

[*Later note*.—The temple at Soleb was built by Amenophis III with a colonnade, and I believe the flanking walls are bonded into the pylon. This is another reason for considering that colonnades, and not hypostyle halls, were intended at Luxor and Karnak. It has been deduced that a hypostyle hall was intended at Luxor from the fact that half-drums of columns were found in the walls of Tut'ankhamûn. The fact that these are more or less shaped has been taken as proof that they had once been erected. To me this does not seem likely, as there are not sufficient of them to have constructed more than a column or so.

As to the flanking walls at Luxor it seems possible that the solid portion is the work of Amenophis, and the hollow part above that of Tut'ankhamûn. It must have been left (if this is so) at a height of about three metres. I suggest that the drums Tut'ankhamûn built into the walls were surplus sent from the quarries to allow for breakages.

¹ If the cartouche of Ramesses I really ever existed on one of the columns other than the central double line, it follows that it was he who changed the scheme of a colonnade into a hypostyle hall, and not Seti I.

WHO WERE THE AMORITES?

It has been taken for granted that the Amurri of the Assyrian inscriptions, the Amorites of the Old Testament, represented the Western Semites, and that the Kingdom of the Amorites occupied the territory between the Euphrates and the Jordan. The assumption, however, is incorrect. The facts as we now know them, whether geographical, historical, philological or ethnological, point in a different direction.

Geographical.—In the survey of the high-roads of the empire made for Sargon of Akkad (*Keilschrifttexte aus Assur verschiedenem Inhalts*, 1920, No. 92, 29; *ANCIENT EGYPT*, 1924, Part I) we read: “From the Gate of Talbis to the Plain is the land of GIR¹-[GIR-KI] whose frontiers are Bit-Sin and Sumer.” Bit-Sin, “the Temple of the Moon-god,” is Harran, as in the line following, and GIR-GIR-KI is stated to be a synonym of “the Amorite land” (*W.A.I.*, II, 50, 59.) “The Plain” is the Padan-Aram of the Old Testament. In the copy of the text found at Assur the first syllable of the name of Talbis seems to have been written *sur* (↷VV) instead of *tal* (↷VV!), but the copy was a school exercise and is full of errors. Talbis is the modern Talbes, an island of the Euphrates a few miles south of Anah. In the time of Sargon, consequently, the Amorites would have occupied the country later known as Mitanni.

In Sumerian the name is *Mur-rû* and not *Amurru*. Simti-silkhak the father of Rim-Sin is entitled *adda Murrû* “father of the Amorite-land” in some of his son’s inscriptions and *adda Yamutbal* “father of Yamutbal” in others. Yamutbal was on the eastern side of the Tigris opposite Southern Babylonia; hence it follows that either Amorites had settled in the Elamite district of Yamutbal or that the two titles belong to different periods of Simti-silkhak’s life. Unfortunately we do not know what the title *adda* “Father” signifies. That Amorites should have settled on the further side of the Tigris is very probable, since they were in Babylonia in historical times, enjoying equal rights and privileges with the native Babylonians as the contract tablets show, while the Weld-Blundell tablet published by Prof. Langdon indicates that they were in Babylonia also in prehistoric times (*see below*).

The relation between the *Amurru* and the country called *Šubartu* by the Babylonians is difficult to determine. In *W.A.I.*, V. 16, 19, 20, *Šabartum* is associated with “*Emutbal*” on the one side and *Elamtum* on the other. But here neither *Šubartum* nor *Elamtum* are proper names; they merely denote “Highlands” and are given as equivalents of *sadu* “mountain.” *Šubartu*, in fact, denoted the “Highland” plateau to the north of the Babylonian plain, sloping northwards to the *Khubur*, the river of death, in the Armenian mountains (*see Proc. S.B.A.*, Dec., 1915). The “land of the *Khubur*,” accordingly, was a synonym of *Šubartu* (Brünnow 2081).

Šubartu was thus a vague term denoting the uplands north of Babylonia and consequently could be expressed by the same ideographs (*ŠU-GIR*, *ŠA-GIR*) as

¹ Not *GIM*.

Elamtu. But whereas Elamtu was preferably restricted to the mountainous country east of the Tigris, Šubartu was preferably used of the Mesopotamian regions west of it. Hence, like Amurru, it could represent the eastern portion of Mitanni, and so be denoted by the ideographs ŠU-EDIN "the plain of Šu." Šu is the Semitic Šutu—Beduin who still roam over the Mesopotamian plain—and corresponds with the Sheth of the Old Testament (Numb. xxiv, 17).

Just as there was a specific country of Elam, however, by the side of the general term Elamtu, so there was a specific country of Šubaru by the side of Elamtu. The litterati of Nabonidos identified this with Assyria, perhaps because the original Assyria lay under the mountains of the north-east, but more probably because the beginning of Assyrian power was due to the occupation of northern Mesopotamia; Samas-Hadad I was already king of Mari and Sirqu or Tirqa (Tel Ishâra near Dêr ez-Zôr), "the kings of Tugris" (or Turukki) in north-eastern Mesopotamia brought him tribute along with "the king of the Upper Country" (i.e., northern Syria and south-eastern Asia Minor), and he engraved his records "in the land of Lebanon on the shore of the Mediterranean" (K.T.A., 1911, I, No. 2). It is possible that at this time the Assyrians gave the name of Šubria to their frontier-province on the N.W., though it is more probable that the two names, Šubria and Šubaru, have nothing to do with one another.¹

We conclude, therefore, that (1) in early days the Babylonians gave the name of Šubaru, "the Highlander," to the inhabitants of the plateau on both sides of the Tigris, irrespective of their race or language, and (2) that a portion of this territory came to be known as the land of the Murrû or "Amorite" after the Mitannian occupation of the country. That the language (or one of the languages) of Šubartu was Mitannian we learn from the glosses in the lexical tablets where the Mitannian *Tessub*, *Sauskas* (=Istar) and *ene* (=="god") are stated to be Šu (i.e., Šubartu) words.

Historical.—The earliest king of the Amorites of whom we know bears a Mitannian name. This is Aqwaruwas, as it is written in the Hittite version of the Chronicles of Naram-Sin (*Keilschrifttexte aus Boghazkoi*, III, 2, 13, 12.) When we come down to the Tel el-Amarna age the names are still Mitannian, though mixed with Semitic ones. The name formerly read Abbi-Tessub has now been corrected to Dubbi-Tessub, and his father was Ar-Tessub "the gift of Tessub."² In the old Testament "Sihon, king of the Amorites," similarly bears a non-Semitic name.

¹ In the Annals of Khammurabi published by Langdon (*Oxford Edition of Cuneiform Texts*, II, pp. 31-35) Šubartu is described as being on the banks of the Tigris ("Malgi and the bank of the Tigris as far as the land of ŠU-EDIN.") Later on, in the 33rd year, Malgi is conjoined with Mari near Dêr ez-Zôr on the western bank of the Euphrates). In the 36th year of Khammurabi, the Babylonian king is stated to have overthrown "the army of Turukkum, Kaknum (the modern Kerkûk) and the mountain of ŠU-EDIN"; five years earlier the combined forces of the enemy consisted of "the army of Elam from the frontier of Markhasi (the earlier Barakhsî), ŠU-EDIN, Gutium (Kurdistan), Esnunna (Tell Asmar on the eastern side of the Diyala) and Malgi." Šubartu is thus placed between Elam and Kurdistan and distinguished from Esnunna; it would therefore have corresponded to Assyria which lay west of Kerkûk. That Assyria was conquered by Khammurabi at some period in his reign we already knew, and also that the Assyrian territory already comprised north-eastern Mesopotamia as well as Northern Syria. As early as the age of the Third Dynasty of Ur (B.C. 2300) Kara Eyuk near Kaisariyeh in Cappadocia was an Assyrian colony.

² Another king of the Amorites who lived a little before the Tel el-Amarna age and was a contemporary of the Hittite king Khattusilis III had the Mitannian name of Bente-sîna ("brother of the prince"); Weidner: *Politische Dokumente aus Kleinasiien*, II, p. 126.

Philological.—The Sumerian name of “the Amorite” was Mur-rú. This is evidently the same as the Mitannian *Murru-khe umini* “the land of Murrú” as Dusratta in his letter to the Pharaoh (Col. III, 6.) calls his kingdom of Mitanni in contradistinction to *Masrianni umini* or Egypt. I have long ago identified the name with the Murri-kh-nas of the Syrian geographical list of Thothmes III, in which Lenormant saw the Urrakhinas of Tiglath-pileser I.¹ The suffix *khe* is common in Mitannian (and Hittite) geographical names; *e.g.*, Urkis by the side of Urkis-klie, Salas-khas by the side of Salas, etc. According to Hrozny’s reading, the name of the Amorite also appears in a Hittite text as *Mur-ri* (*Hethitische Keilschrifttexte aus Boghasköi* I, p. 136). It is also the form of the name used to denote the Mitannians in the Hittite texts, where Winckler, misled by his attempt to discover the name of the Aryans, erroneously read *Khar-ri* *Khar-las* instead of *Mur-ri*, *Mur-las* (Cp. Marlos, the native name of Mallos, which was in Mitannian territory).

It is only in the Semitic languages that “Amurru” takes the place of the original Murru. The prothetic *a* will have arisen from a pronunciation *Mwērru* which involved a double initial consonant. In the Old Testament we seem to have the older form of the name as well as the later, “oak of Moreh” (Gen. xii, 6) and “oaks of Moreh” (Deut. xi, 30) by the side of Hammoreh (Judg. vii, 1) and the Babylonian Amorî (cp. *am'r* (“mountain)-top”).

The German excavations at Assur appear to show that underneath the Sumerian stratum lies a Mitannian stratum (H). Above the Sumerian stratum comes a stratum (F) belonging to the period of the foundation of the great temple, and of the Kings Auspia (Auswa) and Kikia, whose names, however, are more probably Gutian than Mitannian.

Ethnological.—The Mitannian language was Asianic and indicates, therefore, that those who spoke it came from Asia Minor. The name Mitanna or Mitanni by which they were known to their Assyrian neighbours tells the same tale since it signifies “the land of Mita” or Midas. We are thus at last able to explain how it is that the Amorites were found by Sir Flinders Petrie to be depicted on the Egyptian monuments as a blond race, tall and long-skulled, with blue eyes and black or red-brown hair. In my *Races of the Old Testament*, pp. 112-16, I have suggested that they were racially connected with the Libyans, the Berbers of to-day. At any rate they belonged to the white race of Asia Minor and Europe.

Mitanni—the land conquered by Midas—originally denoted only the north-western portion of Mesopotamia. But the Murri, as we now learn from the tablets of Boghaz Keui, extended westward to the frontiers of the Hittite Kingdom, and Aleppo was one of their chief cities. Southward they had made their way to the borders of Egypt: in the time of Abraham they had a settlement at Hazazon-tamar near the Dead Sea (Gen. xiv, 7), and Jerusalem claimed to be their foundation (Ezek. xvi, 3).² Here as elsewhere in Palestine and Syria they were the precursors of the Hittites and may possibly represent the dolichocephalic population of the neolithic age of Palestine. In any case they formed the dominant part of the population there in the days when Syria and Palestine first became known to the Babylonians and accordingly received the name of “the land of

¹ *Records of the Past*, New Ser., v, p. 32

² The name of (Ebed-) Khebe, the king of Jerusalem in the Tel el-Amarna age, is Mitannian, not Hittite, since Khebe was a Mitannian goddess. His enemies were the Hittite Khabiri who, as we learn from the Boghaz Keui tablets, formed the body-guard of the Hittite king. The Mitannian word for “servant” which forms the first element in the name of (Ebed-) Khebe is unknown.

the Murrû." In the later Assyrian age the name changed to that of "the land of the Hittites." Like the Hittites in later days also they made their way into Babylonia itself in the semi-mythical age of that country. The legend of the foundation of Erech published by Prof. Langdon¹ tells us how Enmer-Kar, the Euêkhoros of Ælian, and the founder of Erech, was rescued from his Amorite enemies by Lugal-marda, king of Dêr (now Tell Asmar, east of the Diyala), and how "Sumer and Akkad (Kengi-Uri) in a body expelled the wicked Murrû."² It was thus that the Sumerians crossed the Tigris and entered the Babylonian plain where they introduced the worship of Innini or Istar into Erech. The pre-Sumerian population of Babylonia in the neolithic age, which, it must be remembered, was dolichocephalic, would have come from the highlands of Armenia and Asia Minor. If so, the Biblical traditions which brought them from Ararat would be supported, while light would be thrown on the puzzling fact that in the Sumerian hymns the Sumerians distinguish themselves from the earlier inhabitants of the country as "the black-headed" or black-haired race.

A. H. SAYCE.

Additional note.—In an inscription of Samsu-iluna, son of Khammurabi, which has just been published by Langdon (*Amer. Jrl. of Semitic Languages*, 1924, p. 227), the king calls himself *lugal dagan murrû*, "king of the land of the Amorites." *Dagan* is the Hittite word for "land," another indication that the Murrû spoke an Asianic language.

In a recently published Hittite text (KUB. vi., 38, 36), Seris is said to be the divine "Bull" of Tessub (the supreme god), and to be identical with "the god Mur-ri." Lapislazuli was brought from "the Mountain of the Bull-god," which was called Dapara, the Egyptian Tefreret.

¹ *Oxford Editions of Cuneiform Texts*, I, 1.

² Langdon translates: "In Sumer and Accad altogether the wicked Amorite [shall it (=Erech) expel.]"

THE HISTORICAL VALUE OF EGYPTIAN NAMES.

THE continually changing fashions of names are familiar to everyone. We all recognise that each generation in recent times has had its favourite types, and each century in the past has been marked by its peculiar names ; such are the Norman Petronilla and Devorgilla, or the Edwardian Alionor and Helveth and Piers, or the familiar names which mark out Tudor or Stuart or Hanoverian times. In tracing out the history of the princes of Qau it is needful to distinguish the period of the names associated with them.

Unfortunately Egyptian names have not yet been studied, and beyond Miss Murray's Index of the Old Kingdom there is no classification by different periods. In order to compare the types of names, two indexes are here published and the available material altogether is as follows :—

	Persons.	Names.	Repetition.
Old Kingdom (Murray) ..	1929	550	3·5
Uahka contemporaries (here)	261	174	1·46
XIIth dynasty (here) ..	966	616	1·56

In counting these names small variations in spelling have been ignored, as such are found in mentioning a single person ; but if a difference may mark a period or fashion it should be counted as a distinct name.

The sources of these names are :—for the Old Kingdom, Miss Murray's Index. For the Uahka steles, 22 in Cairo Museum (20022, 20043–107–158–180–193–200–211–215–223–236–245–247–276–388–431–444–445–549–580–595–602, and one dated to the IXth dynasty, 20457, also 5 steles in Lieblein's *Dictionnaire des Noms* (529–541–1556–1650–1785) : it should be said that the current attribution of these steles to the XIIth or later dynasties is without any evidence. The names of the XIIth dynasty here are collected from steles and tombs all bearing kings' names, at Beni Hasan (B, and tomb number), in the Cairo Catalogue (M. number, less 20,000), Lieblein's *Dictionnaire* (L), Petrie's *Season* (P), Bersheh (R, tomb number, and plate), Gardiner's *Sinai* (S.) Couyat and Montet *Hammamat* (H), Berlin Inscriptions (Berl.), and Lepsius *Denkmäler* (L.D.).

An obvious change is the increase of variety in the names, which are thrice as numerous in proportion in the later periods. This is due to the increased variations on type names, rather than an increase of types.

In order to glean some distinctive tests we may note the names which are peculiar to each of these three periods ; as a name should be fairly frequent to be

431	22, 43, 107, 158, 180, 193, 200, 211, 215.	580	OK, XII	22
4249	OK	223, 236, 245, 247, 276, 388, 431, 444, 445 549, 580, 595, 602	215	22, 2431, 444
388	OK, XII	L 519, 541, 1550, 1650, 1785	457, L 157 XII	457
107		43	22, 180, 193, 245, OK, XII	193, 457 XII
595	XII	549	245	223, 444 XII
276	OK	549	457	193, 200, 223, 388 L 1556 OK, XII
602		549	457	L 1556 XII
1785		247	457	
431	OK	431 XII	549	444
431		200	457	22, 215, 223, 236 L 529 XII
22, 211, 580		431	431	245 OK, XII
22, 276		431 457 XII	457 XII	L 1650 OK
247		107	43, 158 XII	247
193	OK, XII	431	549 OK, XII	L 1556 XII
22	OK	245, 444, 602 223, 388. OK, XII	549	215 OK
431	431 XII	43	215	211 XII
L 1556, 457		580	595	158 XII
245, 549 OK	XII	444	444	215 XII
457		444 OK	276 XII	457
223 XII		276	215, 223	22, 602, 602
431		444	388	602 XII
L 1556 OK XII		388	602 OK, XII	457
22		22 OK	445, 580 XII	388
595		457 OK, XII	549	22, 245 XII
247 XII		247 OK, XII	549 OK, XII	595, 602 XII
602		431 XII	22, 580	223, 245, 431 ALTAR QAU
223 XII		245	107 XII	602 XII
L 1785 XII		215 OK	549 XII	43
107		22	L 1650	431
247 OK		200, 245, 580	388 OK	431 XII
L 1650		1531 OK	158, L 157 OK, XII	43
193		247	215, 580	445 OK
245 XII		549	43, 276, 431, 549, 580, 602. XII	L 1785
L 529		245	158, 457	247 OK XII
245		247, 388	602	444 XII
158, 580 OK XII		444 OK	457 XII	457, 549
215		457 XII	193, 211 OK, XII	158, 193, 457 XII
276 XII		211 XII	245 XII	236 OK XII
444, 595 XII		580	457 OK, XII	602 OK
276 OK, XII		200 L 1556	580 OK, XII	457
158		247, 388	457	107
388		457	22, 158, 200 388, 457 OK, XII	223
549		158	549 CK	247 OK, XII
		223	457	223
		L 529 OK, XII		107

NAMES ASSOCIATED WITH UAHKA.

L = LIEBLEIN, DICTIONNAIRE, OTHER NUMBERS + 20,000 = CAIRO.

counted as distinctive, we may limit the test names to those that occur about 1 per cent. of the total persons of each period. There are 10 such in the Old Kingdom, 4 in the Uahka steles, and 6 in the XIIth dynasty.

Old Kingdom.	Uahka steles.	XIIth.
Ahy	Uahka	Ameny
Atta	Mut-hetep	Amenemhat
Adu	Hemäget	Mentuhetep
Ptah-shepses	Hetepui	Khenta-khety
Ra-hem		Tehuti
Khua		Să, Săt
Khennu		
Sabu		
Snezem		
Seshem-nefer		

These do not take into account the many cases in which final  in Old Kingdom becomes  later. This is seen in Aba—Abu IX, Apa—Apu IX, Afa—Afu XII, Beba—Bebu IX—Beba XII, Heba—Hebu IX, Hena—Henu IX, Hesa—Hesu IX, Hetepa—Hetepu IX—Hetepa XII. Senba—Senbu IX, Teta—Tetu IX, Thetha—Thethu IX—Thetha XII.

Turning now to the continuity of names, there are 15 *per cent.* of the Old Kingdom names which last through to the XIIth dynasty. The Uahka group has 7 *per cent.* which are only found earlier in the Old Kingdom, and 13 *per cent.* which are only found later in the XIIth. The links with the XIIth are then about double of those with the Old Kingdom. Yet the Uahka group is distinct from the XIIth, as shewn by the lack of the very typical names of the XIIth stated above.

Another comparison of types, which means much in the outlook of the time, is the frequency of Nefer and Nekht in names, the interest in beauty or in force.

In		Nefer	per cent.	Nekht	per cent.
1929	Old Kingdom	.. .. 161	8·4	7	·4
261	Uahka ..	.. .. 12	4·7	14	5·3
956	XIIth dynasty	.. .. 34	3·6	29	3·0

Thus force was much less thought of in the Old Kingdom, and beauty much more regarded, than in later times.

In the above statements one stele has been omitted, as it is on the border line, the great Louvre stele listed in Lieblein, 249. In this occurs once the name Amenemhat, so it is just within the XIIth dynasty, though all the other names are earlier. The name Uahka is on this stele, in a generation earlier than Amenemhat, and so just within the XIth dynasty. This stele is then not classed here into either the Uahka or XIIth lists, as it lies at the junction, and would confuse the character of either list by its mixture of generations. There is one other ambiguous stele, Lieblein 151, which appears to be of Hetep, chief of the prophets of Uahka under Amenemhat III; it may, however, be a unique example of Uahka as a living name in the XIIth dynasty.

The resemblances of the Uahka names to those before and after may be stated by the number of personal occurrences of certain names in each period.

			Old Kingdom.	Uahka.	XIIth.
Total	..	..	1920	261	956
Aba, Abu	..	..	9	—	1
Amen	....	..	1	—	58
Uahka	..	..	0	37	1(?)
Beb	....	..	21	—	3
Mentu	....	..	0	—	26
Min	....	..	12	1	—
Mut	....	..	0	5	—
Nekht	....	..	4	14	—
Ren	....	..	6	9	—
Hap	....	..	5	—	14
Hor	....	..	3	2	—
Khety	....	..	5	6	—
Sent	..	..	0	—	7
Sebek	..	..	13	21	—
Sa . . . Sat . . .	..	..	5	3	70
Thetha, Thethu	..	..	11	—	1

The dash shows where the connection of numbers is closest, having regard to the proportion in the total of persons. There are thus eight resemblances of the Uahka list to the frequency in the Old Kingdom, and seven to the frequency in the XIIth dynasty. This shows how the Uahka group is intermediate in character, though it has more continuity with the later than with the earlier period.

In the preceding list of names associated with Uahka the plain reference numbers—with 20,000 added—are those of the Cairo Catalogue (Lange and Schäfer), those with L. are from Lieblein's *Dictionnaire*. Those names that descend from the Old Kingdom are marked O.K., and those which last to the XIIth dynasty are marked XII; this is allowing for the mutation of final *a* and *u* as already mentioned.

Only a few of the steles are included with the photographs of the Cairo Catalogue. I have to thank the Director, M. Lacau, for kindly having others photographed for me, so that the style can be compared. The main distinction from later steles is the frequency in the Uahka series of cornice and roll framing round the stele, like the style of the Old Kingdom.

Some of the Uahka *ha* princes are named; one is the son of Neferhetep (L. 529), one has a wife Hetept (L. 541), one has father Uahka-em-usekht (20549), one is named as being of the Xth nome, Aphroditopolis, (*P.S.B.A.*, 1914, 38), and another of this age is named Henenta, with wife Sat-antef, and father and son named Abu (20022). None of the Uahka steles can yet be connected together by genealogy, though it is obvious that they are of one family by the frequent repetitions of names.

The list of names of the XIIth dynasty is entirely drawn from monuments with kings' names. Modern statements of the dates of steles do not distinguish between the XIIth and adjacent dynasties. Those names which begin in the Old Kingdom are marked "O.K.—". A few names are added of the XIth dynasty from Hammamat marked "XIth." The names from Sinai are largely those of workmen, and therefore from a stratum hardly represented in the usual steles. Among them are many of the popular form Ameny, but none of the form Amenhat. Even in this lower class there are none left of the old simple names, Beba,

¶ j. 25 M. 127	¶ j. 24 L. 99, 103, 108, 109, 114 130, 133, 143, 147, 149, 182, 3	¶ j. 24 B. 2 130, 24, 28, 85, 92, 96, 97, 98, 117, L. 9, 136, 3	¶ j. 24 L. 123 ¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 R. 2. XXX	¶ j. 24 L. 136, 3	¶ j. 24 L. 1506	¶ j. 24 L. 152, B. 2, M. 515 B. 3, 524, 85, 93, 114, 115, M. 515, LD. 136f, XI th H. 42, 48	¶ j. 24 L. 1506 L. 1493
¶ j. 24 P. 262	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 L. 130	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 S. 90	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 L. 1489	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 L. 1480	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 L. 152	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 S. 105	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
¶ j. 24 P. 154	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 144	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 131	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 1489	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 R. 2. XVII	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 28	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 133	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 147	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 B. 3	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 85	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 M. 315	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 130	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 104	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 24	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 H. 96	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 56	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 106	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 106	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 1494	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 H. 43	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 M. 140	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 141	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 90	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 B. 2	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 1482-3, 1487, B. 2	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
R. 2. XXIX M. 127, 140, 516, XI th H. 40	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 100	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 144	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 S. 117	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 B. 2	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 123	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 146	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 1506	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 B. 2	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 H. 17	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 123, 137, H. 96	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 144	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 148	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 M. 516	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 L. 108, M. 515	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493
A. 143 B. 2. XV.	OK-	¶ j. 24 L. 1506	¶ j. 24 L. 1489	¶ j. 24 L. 1506 L. 1493

NAMES ASSOCIATED WITH KINGS OF XIIth DYNASTY.

B, BENI HASAN. H, HAMMAMAT. L, LIFLEIN. I.D., DENKMALER. M, CAIRO.
P, SEASON IN EGYPT. R, BERSHEH. S, SINAI.

§ 41	P. 154	§ 52	L. 152, 1506 OK-	§ 53	L. 124	§ 54	M. 515
§ 42	L. 100, 116, H. 55	§ 53	L. 112, 140	§ 54	L. 146	§ 55	B. 2. M. 515
§ 43	L. 125-6, 131, 137.	§ 55	S. 106 OK-	§ 56	L. 1506	§ 57	M. 515
§ 44	L. 152, 1491	§ 56	M. 515	§ 57	L. 1506, Berl. 1190	§ 58	L. 113
§ 45	S. 48, 121, P. 91, M. 516	§ 57	M. 515	§ 58	§ 59	§ 60	L. 99, 119, 149, 157 B. 2. 3
§ 46	L. 112, 138, M. 598	§ 58	B. 3 OK-	§ 59	L. 1506	§ 60	M. 515-6
§ 47	LD. 139 & F.	§ 59	L. 144, M. 536, H. 42	§ 61	S. 115	§ 62	L. 99, B. 2. 3 H. 48
§ 48	L. 131	§ 60	OK-	§ 62	L. 1480	§ 63	L. 124, 1439, 1491 S. 85 B. 2. 3 Berl. 1183 OK-
§ 49	L. 131	§ 61	S. 28	§ 63	B. 2	§ 64	H. 17
§ 50	B. 3	§ 62	L. 108 OK-	§ 64	B. 2.	§ 65	§ 66-44 L. 1485
§ 51	L. 96	§ 63	P. 154	§ 65	M. 140	§ 66	U. 1506
§ 52	L. 111 OK-	§ 64	B. 2.	§ 66	L. 1483	§ 67	§ 68
§ 53	L. 103	§ 65	L. 1487	§ 67	L. 1492	§ 68	B. 3. 15
§ 54	L. 99, B. 3, S. 106, 114-5	§ 66	OK-	§ 68	L. 119	§ 69	S. 85
§ 55	H. 19	§ 67	L. 121, B. 3, R. 1 VII	§ 69	R. 2 XXVII	§ 70	M. 515
§ 56	OK-	§ 68	R. 2, XI, XXIV R. 3 XV	§ 70	R. 2 XXVII	§ 71	S. 85
§ 57	L. 116, 131	§ 69	OK-	§ 71	R. 2 XXVII	§ 72	P. 1524
§ 58	S. 85	§ 70	L. 100, B. 2, 3, 21, 5, 85	§ 72	S. 24	§ 73	L. 111, 123
§ 59	L. 101	§ 71	M. 515-6	§ 73	B. 3	§ 74	S. 107
§ 60	S. 27, 81, 131 P. 91	§ 72	R. 2 XXXIX OK-	§ 74	L. 1479	§ 75	M. 516
§ 61	L. 108, 144	§ 73	R. 2 XV	§ 75	M. 516 OK-	§ 76	L. 146
§ 62	B. 3	§ 74	L. 149	§ 76	S. 115	§ 77	§ 78
§ 63	L. 147	§ 75	M. 515	§ 77	B. 3 OK-	§ 78	B. 15.
§ 64	L. 107	§ 76	R. 2 XXIX	§ 78	L. 1491 OK-	§ 79	R. 2. XVII OK-
§ 65	L. 117	§ 77	L. 103	§ 79	L. 120, H. 47	§ 80	L. 114, 585, M. 515
§ 66	S. 85	§ 78	L. 1480	§ 80	L. 120 OK-	§ 81	L. 106, 115, 126
§ 67	S. 85	§ 79	OK-	§ 81	L. 1482, H. 48	§ 82	134, 140, 143, 5, 57, 83 OK-
§ 68	S. 85	§ 80	L. 105	§ 82	L. 107, 108, 123, 125	§ 83	L. 122
§ 69	S. 85	§ 81	L. 1491	§ 83	R. 2 XXVII	§ 84	M. 516
§ 70	S. 85	§ 82	B. 2	§ 84	L. 113	§ 85	R. 2. XXX
§ 71	S. 85	§ 83	B. 3	§ 85	L. 105, 1480	§ 86	L. 99
§ 72	S. 85	§ 84	B. 3, 13.	§ 86	B. 2 OK-	§ 87	L. 112
§ 73	S. 85	§ 85	B. 2, 23	§ 87	M. 516	§ 88	B. 23
§ 74	R. 2 XII	§ 86	L. 148	§ 88	L. 103, 149, R. 2 XXIV	§ 89	B. 2 OK-
§ 75	L. 125	§ 87	S. 114	§ 89	B. 2	§ 90	Berl. 1192
§ 76	M. 536	§ 88	L. 1452	§ 90	L. 1461	§ 91	
§ 77	L. 1506	§ 89	S. 85	§ 91	S. 53, M. 536	§ 92	H. 47
§ 78	B. 2.	§ 90	OK-	§ 92	L. 1481	§ 93	S. 885
§ 79	L. 108	§ 91	L. 1487, 1489	§ 93	U. 144, M. 536	§ 94	B. 23
§ 80	OK-	§ 92	OK-	§ 94	L. 144	§ 95	L. 144 OK-
§ 81	L. 113	§ 93	H. 48	§ 96	L. 1480	§ 97	L. 100
§ 82	L. 1506	§ 94	L. 1479	§ 98	R. 2 XXVII	§ 99	
§ 83	L. 1490	§ 95	L. 128 OK-	§ 99	L. 144	§ 100	
§ 84	L. 1490	§ 96	L. 114, 1490, 1493	§ 100	L. 104, B. 2	§ 101	
§ 85	L. 122	§ 97	5. 85. P. 98	§ 101	S. 85, 90	§ 102	
§ 86	B. 2.	§ 98	L. 1506, P. 262	§ 102	B. 23	§ 103	
§ 87	L. 108	§ 99	OK-	§ 103	S. 88	§ 104	
§ 88	S. 85	§ 100	L. 111	§ 104	L. 111, 1491	§ 105	
§ 89	L. 106	§ 101	L. 113	§ 105	R. 2 XXVII	§ 106	
§ 90	S. 85	§ 102	OK-	§ 106	L. 101	§ 107	
§ 91	L. 106	§ 103	B. 27	§ 107	L. 1506, B. 3	§ 108	
§ 92	S. 85	§ 104	L. 131	§ 108	L. 102	§ 109	
§ 93	M. 536	§ 105	S. 85	§ 109	L. 114, 1494, S. 119	§ 110	
§ 94	L. 108	§ 106	OK-	§ 110	S. 27	§ 111	
§ 95	L. 140-1, 144	§ 107	S. 85	§ 111	Berl. 1190	§ 112	
§ 96	L. 107, 119	§ 108	L. 114, 1485, 1494	§ 112	S. 85, 90	§ 113	
§ 97	L. 122	§ 109	5. 92, M. 535, H. 42	§ 113	Berl. 1190	§ 114	
§ 98	L. 140-1, 144	§ 110	L. 108, 117	§ 114	L. 102	§ 115	
§ 99	L. 140-1, 144	§ 111	OK-	§ 115	B. 2	§ 116	
§ 100	L. 140-1, 144	§ 112	L. 1491, M. 127, 593	§ 116	S. 47 OK-	§ 117	
§ 101	L. 140-1, 144	§ 113	5. 27, 51, 90, 92	§ 117	L. 1479	§ 118	
§ 102	B. 3 OK-	§ 114	100, 105, 126 OK-	§ 118	L. 99, M. 516	§ 119	
§ 103	B. 3	§ 115	OK-	§ 119	L. 1450	§ 120	
§ 104	B. 3	§ 116	L. 113, 118, 1493	§ 120	P. 154	§ 121	
§ 105	R. 2 XXIX	§ 117	OK-	§ 121	OK-	§ 122	
§ 106	S. 85	§ 118	B. 3	§ 122	OK-	§ 123	
§ 107	B. 2, L. 1477	§ 119	L. 123	§ 123	OK-	§ 124	
§ 108	OK-	§ 124	L. 123	§ 124	M. 518	§ 125	

NAMES ASSOCIATED WITH KINGS OF XIIITH DYNASTY.

B, BENI HASAN. H, HAMMAMAT. L, LIEBLEIN. L.D., DENKMALER. M, CAIRO.
P, SEASON IN EGYPT. R, BERSHEH. S, SINAI.

§	S. 90	§ 80	B. 13	§ 13	L. 124, S. 89, H. 48	§ 13	L. 1489
§ 13	B. 2	§ 13	L. 152	§ 13	L. 118	§ 13	L. 1491
§ 13	L. 1477, 1487	§ 13	L. 138	§ 13	B. 3	§ 13	L. 149
§ 13	R. 2, XXIX	§ 13	R. 2, XI, XV, XXVII	§ 13	S. 100	§ 13	L. 1486
§ 13	L. 123	§ 13	S. 35	§ 13	L. 1482	§ 13	L. 123
§ 13	B. 2	§ 13	L. 146	§ 13	S. 28, 105	§ 13	L. 123
§ 13	L. 1362	§ 13	S. 91	§ 13	L. 144	§ 13	L. 152
§ 13	B. 2	§ 13	L. 107, 117, 123, 131 1485, B. 1190	§ 13	S. 24	§ 13	Berl. 1183
§ 13	B. 2	§ 13	L. 149	§ 13	L. 123	§ 13	M. 26
§ 13	B. 2, L. 1477	§ 13	H. 1.241	§ 13	S. 35, 77, 91, 105 OK-	§ 13	L. 149
§ 13	L. 1506	§ 13	R. 2	§ 13	L. 1494	§ 13	L. 1480
§ 13	L. 114 OK-	§ 13	L. 1491, 5. 83, 90, 100	§ 13	S. 85	§ 13	M. 516 OK-
§ 13	B. 23, 13, 14, 17 L. 1493, M. 515	§ 13	L. 134	§ 13	S. 85	§ 13	L. 1531 OK-
§ 13	S. 85 OK-	§ 13	B. 3	§ 13	Berl. 1183	§ 13	L. 1477
§ 13	B. 3	§ 13	L. 107	§ 13	Berl. 1193	§ 13	L. 1484
§ 13	B. 2	§ 13	S. 85, 90	§ 13	L. 122, 1494, S. 117	§ 13	L. 122
§ 13	L. 122	§ 13	L. 128	§ 13	B. 2	§ 13	B. 3
§ 13	B. 3, 17, 23 L. 99	§ 13	L. 1479	§ 13	L. 106	§ 13	Berl. 1190
§ 13	§ 13	§ 13	S. 85	§ 13	L. 118, M. 515	§ 13	B. 3, 23
§ 13	L. 149	§ 13	L. 1491	§ 13	S. 100	§ 13	L. 1491
§ 13	§ 13	§ 13	L. 122	§ 13	S. 85 OK-	§ 13	Berl. 1190
§ 13	B. 3	§ 13	L. 103, 108, 127, 130, XII, H. 149 OK	§ 13	S. 105	§ 13	L. 108
§ 13	S. 85	§ 13	S. 90	§ 13	L. 1483	§ 13	L. 1477
§ 13	H. 81	§ 13	L. 1485 P. 91	§ 13	L. 133, 149	§ 13	L. 1493 OK-
§ 13	S. 90, 106, L. 144	§ 13	S. 53, 106-7	§ 13	L. 144	§ 13	§ 13
§ 13	§ 85	§ 13	L. 103, 108, 127, 130, 143, 157, 116 OK-	§ 13	L. 131	§ 13	S. 85
§ 13	S. 24	§ 13	S. 27, 28, 57, 116 OK-	§ 13	S. 105	§ 13	L. 1480
§ 13	L. 1483	§ 13	S. 85	§ 13	S. 106	§ 13	L. 147
§ 13	§ 13	§ 13	L. 122	§ 13	§ 13	§ 13	L. 1483
§ 13	§ 13	§ 13	S. 27	§ 13	L. 1482	§ 13	L. 108, M. 536 L. 108 Berl. 1192
§ 13	M. 516	§ 13	L. 139 S. 85	§ 13	L. 1531	§ 13	§ 13
§ 13	M. 140	§ 13	UD. 1396	§ 13	R. 2, XXVII	§ 13	L. 117
§ 13	L. 144	§ 13	L. 124	§ 13	M. 140 OK-	§ 13	L. 104, 108, 1506
§ 13	B. 3, 14	§ 13	L. 104	§ 13	S. 85, 118	§ 13	L. 1494
§ 13	L. 122	§ 13	L. 103, 106, 108, 114, 117, 124, 149	§ 13	§ 13	§ 13	Berl. 1192
§ 13	M. 140	§ 13	S. 27, 71, P. 273	§ 13	L. 147	§ 13	L. 152
§ 13	L. 1480	§ 13	L. 1506	§ 13	Berl. 1197	§ 13	S. 24
§ 13	L. 103	§ 13	L. 144	§ 13	L. 111	§ 13	§ 13
§ 13	M. 140	§ 13	B. 2	§ 13	R. 2	§ 13	B. 2
§ 13	L. 99	§ 13	L. 1506	§ 13	L. 121 R. 2	§ 13	L. 128, 149, UD. 1396
§ 13	L. 1480	§ 13	L. 118, 128	§ 13	P. 98	§ 13	§ 13
§ 13	L. 118	§ 13	L. 124	§ 13	L. 114	§ 13	L. 148
§ 13	S. 56	§ 13	L. 124	§ 13	R. 2, XXIV	§ 13	S. 85
§ 13	L. 130	§ 13	L. 1477	§ 13	L. 1487	§ 13	R. 2, XXIV
§ 13	L. 149	§ 13	§ 13	§ 13	R. II. XXIII	§ 13	L. 1489
§ 13	L. 1480	§ 13	§ 13	§ 13	S. 100, 107?	§ 13	R. I.
§ 13	L. 149	§ 13	§ 13	§ 13	S. 90, 106	§ 13	R. II. 118
§ 13	L. 1484	§ 13	§ 13	§ 13	L. 144	§ 13	R. II. 121
§ 13	L. 1480	§ 13	§ 13	§ 13	L. 144	§ 13	L. D. 1398
§ 13	S. 71	§ 13	§ 13	§ 13	S. 92	§ 13	S. 85
§ 13	S. 71	§ 13	L. 99, 119	§ 13	S. 115	§ 13	R. 2 L. 121
§ 13	L. 1495	§ 13	P. 74 L. 146, 1492, S. 106	§ 13	L. 123, 146, B. 3, S. 92	§ 13	L. D. 1398
§ 13	L. 149	§ 13	S. 126	§ 13	OK-	§ 13	B. 29
§ 13	M. 140	§ 13	L. 146, 152, S. 34	§ 13	L. 108 OK-	§ 13	
§ 13	L. 114	§ 13	L. 107	§ 13	§ 13 L. 149	§ 13	

NAMES ASSOCIATED WITH KINGS OF XIIth DYNASTY.

B, BENI HASAN. H, HAMMAMAT. L, LIEBLEIN. L.D., DENKMALER. M, CAIRO.
P, SEASON IN EGYPT. R, BERSHEH. S, SINAI.

Teta, Dada and Thent. The Mehti names in this age are only found in Sinai, probably due to eastern recruits.

What is now needed is the classifying of the undated steles by the names, separating those before the XIIth dynasty from those of the XIIth and of the XIIIth—XIVth dynasties. When the Old Kingdom is divided into early and late names, the IXth to XIVth separated, and the division of the early and late XVIIIth, the XIXth—XXth, and the various later periods all distinguished on the basis of dated monuments, a great instrument will be in our hands for discriminating different periods.

It should be mentioned that Lieblein's Dictionary of names, so often quoted and so useful, is deficient in the Index. After extracting 332 names from the copies, they were checked by the index, and 18 names, as well as 14 references to included names, were found to be missing.

FLINDERS PETRIE.

NOTE SUR LES BATEAUX PRÉHISTORIQUES

DÉCRIVANT les peintures de bateaux sur les vases préhistoriques de la catégorie appelée par Petrie "decorated," j'ai écrit dans la nouvelle édition de mes "Leçons," qui paraîtra prochainement sous le titre : "L'Art Egyptien. Étude et Histoire," t. I., p. 47 : "A la proue des deux, une sorte de palme qui sert peut-être de voile." On trouvera réunies dans Petrie, *Prehistoric Egypt*, Londres, 1920, pl. XIX-XXII des variantes nombreuses de ces palmes fichées à l'avant des bateaux. Dans ANCIENT EGYPT, 1914, p. 34, Petrie écrit : "In the bows there is a seat for the look-out man, with a branch put over it to shade him from the glare. Whether these branches were young trees in pots, or cut branches, is not certain." La nouvelle explication que je suggère m'a été fournie par la lecture d'un livre de L. Bernardini sur *Le Littérature scandinave*, Paris, 1894, dans lequel, à la page 45, au milieu d'une description de la région du Mélar et de l'Archipel près de Stockholm, on trouve le passage suivant : "Les habitants vivent presque exclusivement de la pêche . . . Plus d'une fois, durant la journée, nous avons rencontré leurs barques teintes en rouge, qu'ils fabriquent eux-mêmes avec des sapins. Les rameurs, souvent, sont des enfants de sept à huit ans, et parmi eux, des fillettes au teint d'ambre, sur lequel trenchent curieusement la chevelure d'un blond presque argenté et les clairs myosotis des prunelles. Ils errent ainsi seuls à leur plaisir sur les vagues et, pour aller plus vite, quand par hasard le bateau n'a pas de voiles *dressent contre le vent des branches vertes coupées à la rive.*" Et cela expliquerait parfaitement pourquoi ces branches sont parfois tressées sur les barques préhistoriques, de manière à augmenter leur efficacité. C'est le mât et le voile sous une forme tout à fait rudimentaire.

JEAN CAPART.

A similar use of the branch on the Guinea coast was pointed out by Mr. E. S. Thomas in ANCIENT EGYPT, 1923, p. 97.

REVIEWS.



Lettre à M. Dacier . . . par Champollion le Jeune ; précédée d'une étude sur le déchiffrement par Henri Sottas. 8vo. 84 + 52 pp. 4 plates. (Paris, Geuthner.) 1922. 25 frs.

This is a facsimile lithograph edition of Champollion's classic demonstration issued in 1822, which established the permanent lines of hieroglyphic transcription. The study by M. Sottas prefixed is a discussion of the stages of decipherment which led up to the decisive work. It is difficult to us, who accept the system without regarding its pitfalls, to realise how long the various decipherers were delayed by the mixture of principles in the writing. The old idea of a purely symbolic writing had to be reduced to its minor place. The distinction of mute determinatives had to be made, to eliminate them from transcription. The distinction of single letters from syllabic signs had to be grasped. Then the only period when bilingual renderings were to be had was when hieroglyphs were being forgotten by the Egyptians, were used in a corrupt and fanciful manner, and had difficulties which were unknown in good periods. It is only a wonder that so much could be reached through such poor material.

M. Sottas is very impartial in his assignment of the credit of the long and tentative work which led up to the decisive step of 1822. For a generation before, various acute minds had been working at the problem. Far the most successful was Young, and in judging of his relaxing his efforts after having gone so far, we must remember that his main interest was in physical science, and hieroglyphs were only a by-play. The fraction of his skill that he gave to that subject almost outdid the labours of those who were entirely devoted to it. M. Sottas carefully sifts out the successes of Young, and shows that he had rightly understood over a hundred signs, though his mistakes were more numerous. Moreover, he had proposed numerous Coptic equivalents, of which many were correct. He had his feet well on the ladder, and had he not been immersed in other work he would probably have cleared away the difficulties which delayed him. All of this preceded the exposition by Champollion, which was the crystallising of results that had been partly known for several years before.

What seems really needed for the history of the subject would be a table of the dated results of each worker in historical order, stating at length what was correct, and saying what proportion that bore to the whole of his statements. In any case we must welcome so clear a discussion, and so impartial a statement, as that here prefixed to the celebrated letter of 1822.

La Scultura ad Ahnâs note sull'origine dell' arte Copta. By UGO MONNERET DE VILLARD. 8vo., 97 pp., 68 pls. (Milano, office of "Aegyptus.") 1923.

This work is of value as a comparative study of the later Roman sculptures, and as a convenient *corpus* of material, comprising 105 examples of work. After a chapter on the history of Ahnâs in the Roman period, and the types of Roman

lamps there, the serious comparison of the sculptures begins. The various motives are described—Herakles, Nereids, Orpheus, Leda, Europa, Daphnae. Then the architectural divisions of capitals, niches, conchs, shell conchs, and ivy-leaf pattern. The dating of various ornaments and attire of the figures is treated, with a view to dating the sculptures. All of this is good material for discussion, although much of it is inconclusive, or so much later than examples elsewhere that it cannot point to an origin. Lastly there is an account of the evidence of foreigners entering Egypt, as giving a reasonable ground for expecting influences of foreign art. Attention is given repeatedly to the dating of the different subjects, though unfortunately nearly all such material is but vague. Full references to sources appear on every page.

Regarding now some details. The continuous scroll pattern of foliage is noted in many different sources, through Syria, to India and China, with dates of the 4th century and onward. This may interest us as to its dispersion, but the origin of it is as early as the 1st century, as it is seen on Pompeian tomb decoration and bronze work, and all the other examples are local adaptations of the motive. The spread of the Graeco-Roman style in the Han period of China (two centuries B.C. and A.D.) is in the general history of art, of which this is only one detail. The heart-shaped ivyleaf pattern is concluded to have been diffused from Alexandria at the beginning of the 4th century. It forms borders in the theatre of Oxyrhynchos, probably of a century earlier. The bulla pendant is quoted from a great variety of sources, naming the 4th and the 2nd century. The Hawara portraits show the crescent pendant to necklaces of the 2nd century, the ball beginning at about 200 A.D. Wide as the range of comparison here given, we yet need a more complete collection of dateable works, and then an exhaustive study of their details. The present work is a welcome addition to our resources for study ; the illustrations are especially clear and well chosen.

Das Re Heiligtum des Königs Ne-Woser-Re (Rathures). Band II. Die Kleine Festdarstellung, v. BISSING and KEEs, Leipzig, 1923. This is a portfolio of reliefs (scale 1 : 4) from the "vestry" of the Sun temple, with some explanatory notes. Fuller explanations are given in *Untersuchungen zu den Reliefs aus dem Re-Heiligtum des Rathures, I. Teil*, by v. BISSING with the collaboration of H. KEEs (Abhandlungen des Kgl. bayerischen Akademie des Wissenschaften, phil.-hist. Klasse, Munich, 1922).

Vol. III of the series is to contain representations from the courtyard, ascent to the obelisk, etc., which are referred to in the text as *Z* followed by a number. Vol. IV is to contain the "Welt Kammer" and the small finds. v. BISSING considers that the whole building was erected in honour of the *heb sed*, and that the reliefs have nothing to do with sacrifices before the statue of a King. In addition to the foundation of the temple and the counting of cattle, the reliefs depict great homage scenes in which the King took part ; visits to the chapels of the gods, who had come from all parts of the country, and the escort of the King to the throne by these gods. The King dedicated part of his property to the gods, who handed him in return weapons and the symbols of rule. The majority of the gods taking part in the festival are "followers of Horus." Amongst the local gods are Horus of Libya and Neit of Libya. Amongst the divine symbols is the so-called Khensu symbol, borne by a  ; the symbol thus seems to be connected with the Isis cult. Horus and Set appear to live at peace in the temple, as a royal

visit is paid to both gods, and as two falcon standards are carried in procession. The double pavilion is characteristic of the Sun temple. The royal children, usually three in number, take part in the processions in a palanquin. The relation of the festival to Upper Egypt is strongly pronounced as the representation of an episode in Lower Egypt is either a counterpart of that in Upper Egypt or is missing entirely. This state of affairs was difficult to realise whilst only Bubastis and fragments of older records at Soleb and Thebes were known. From the New Kingdom onwards, no festival was possible without Amen. The absence of Ptah, Sekhmet, Seker, Nefertum and Atum is significant of the position of Memphis and Heliopolis at the time of origin of these pictures, and in the author's opinion these conditions do not accord with the belief in the pre-dynastic supremacy of Lower Egypt.

The King is shown walking to a building "to receive the *sed* garment of 4-weave royal linen" (Egyptian hieroglyphs: a building with a door, a staff, a falcon, and a row of four vertical bars) and going to a building "to remove" this garment. There is nothing to distinguish this costume in appearance from the short dress he wears before and after the change. The name of the festival has been derived from *sd* "tail." SETHE now considers (*Göttingen Nachrichten*, 1921) that the determinative is not like the tail but resembles more the *idb* or *wdb* signs, which are both land signs. BISSING quotes texts in which *sd*, *sdt*, *sdyt* is a garment; against the equation with *sd*, "tail," he notes the facts that the word for "tail" has remained masculine in Coptic and that the tail is absent in the Sun temple.

L. B. ELLIS.

Assyrian Medical Texts—The Cuneiform Texts. By R. CAMPBELL THOMPSON. 4to, 107 pp. (Milford.)

Assyrian Medical Texts. By R. CAMPBELL THOMPSON. Roy. 8vo, 34 pp. 2s. 6d. (Luzac.) [Translations.]

The texts here translated are fragmentary, and Mr. Thompson's main interest has been in the identification of the various vegetables and minerals named. These number 250 and 120 respectively, leaving 180 unidentified. How far Mr. Thompson has been successful time alone will show, but this is the beginning of a long study, and his *Assyrian Herbal* and the paper communicated to the Royal Society in March last show how well he is equipped for the task. From the prescriptions translated in the *Medical Texts* Assyro-Babylonian medicine seems to have been very creditable. There are, of course, some very compound remedies, as in modern medicine a hundred years ago; but they were reasonable remedies, purely natural in three-quarters of the cases, and seldom relying on charms or magic to the extent that the numerous texts dealing with these subjects would lead us to expect. The tying of knots comes in as a favourite charm. The use of copper compounds as a germicide for the eyes is comparable with the use of malachite in Egypt. Unfortunately the fragmentary state and uncertain translation of these texts make most of the inscriptions imperfect.

Notwithstanding many possible imperfections, there is no doubt that this work is the most scientific upon the subject of Assyro-Babylonian medicine that has yet appeared, and the author is to be congratulated upon it as well as upon the excellence of his copies. In his identifications of the medicaments used

(which are mainly vegetable), he points out, in his *Assyrian Herbal*, the need for caution.

The portions of the human frame treated of are the head, the body, and the eyes. The remedies and concoctions used are very varied, and in many cases not over pleasant. The use of sulphur-ointment for scab (scurf) and lice in the head, however, is apparently among the most sensible of the remedies, though probably not always successful. Another remedy includes "dust of *diki* of caper, dust of sesame, dust of ¹millet," and "dried doves' dung from a palm of the mountains." "Dung" is expressed by the character KU, which is used for "flour" or "meal" among other things, and the reader will naturally ask how it is that the same character comes to be used, in the same inscription, for two things so different. There is hardly any doubt that a desire existed to make things as difficult as possible for the comparatively unlearned, and this would account for the two usages; but as flour is made into dough, KU could, by extension, have that meaning, and in the mind of the Babylonians, "dung," especially that of a bird, was comparable with "dough."

One of the most interesting words is *kasia*, which seems not to have been cassia, as was suggested some time ago, but "roses." It often occurs alone, but is found also in the phrase *me kasia*, "attar of roses." In an order for garden-produce, *kasia* (*ša-pisannaku-dešša-igub+šar+ia*) are the names of the ideographs which compose it) appears (if the quantities be the same) as costing twice as much as sesame. As it is also mentioned in connection with dates, *kasia* (in Semitic Babylonian *kasū*) may likewise be regarded as an article of food. The *kasia* (transcribed provisionally with the name of the character, *pisan-dešša*), occurs in the text of No. 69 of the *Amherst Tablets*. The amount there mentioned is 8 *gur* 153 *qa*—rather great if such light things as roses (or rose-leaves) are referred to, for the *gur* was the weight by which the tonnage of boats was measured. Other things referred to in this fine old text are the *šam kura*, "mountain-herb," *gu-gal* and *gu-tur*, "large *gu*" and "small *gu*," which were also used in these medical prescriptions. This is not the *gu* borrowed by the Assyro-Babylonians under the form of *qū*, and meaning "thread." Four categories of the *gu*-plant are listed, in addition to what I regarded as being the seed-case (? pod).

The portion dealing with diseases of the eye (p. 22) is, if possible, more interesting than that of the head. The remedies are sometimes elaborate, and the ordinary reader might add, calculated to make a patient wince: "If a man's [eyes] are sick, and matter (?) is secreted on his temples, [thou shalt spread] tanners' verdigris ('shoemaker's vitriol' in Budge's *Syriac Book of Medicines*) on vellum" (?), "on [his eyes] bind, bray copper-dust, arsenic, yellow sulphide of arsenic, mix in curd, apply to his eyes"

Though the Assyrian transliterations are not given, "chiefly because of the difficulty of printing them," there are copious footnotes which furnish good and suggestive explanations and details. It is to be hoped, however, that transliterations will be published later on, as they would be of considerable value in cases of doubtful readings. It will be realised that in this work Mr. Campbell Thompson has accomplished an exceedingly difficult task, and we may look forward to further studies of this important section of Assyriological research from his pen.

THEOPHILUS G. PINCHES.

¹ A doubtful rendering

The Assyrian Herbal.—By R. CAMPBELL THOMPSON, folio, xxvii + 294 pp., 1924, n.p. (Luzac.)

This work is a monograph, in "roneo-ed" manuscript, on Assyrian vegetable drugs, based on the study of many hundreds of medical tablets, including the 660 that he published in his *Assyrian Medical Texts*. The method adopted has been to tabulate the occurrences of the drugs and thus obtain a proportionate calculation of the relative popularity, rarity, or other factor of a drug. Then the Assyrian plant-lists have been studied and in these the ancient botanists collected a number of synonyms and equivalents for different plants which they arranged in a definite order. The data derived from these sources and from the *Syrian Book of Medicine* were then co-ordinated and applied by comparison with the modern flora of Mesopotamia and with the drugs of Oriental and Classical writers as well as with those in the modern Pharmacopoeias, both European and Oriental, in their parallelism of use, and particularly by philological comparison with other Semitic languages. The result is an interesting volume which gives us all that is at present known about Assyrian vegetable drugs.

The problem of the identification of ancient plant-names is one of very great difficulty, chiefly because the data that we have to rely on is mainly philological and there is no more treacherous guide. Mr. Thompson tells us that the Assyrian botanists in their lists of plants "not infrequently added illuminating little notes of their own." But what do these notes amount to? The opium poppy is said to be "like mandragora; children and women gather its juice." Another plant is said to have "a green fruit"; another has "a flower like the chamomile, small and dark blue." These notes are not even as helpful as those sometimes given by the old Egyptian writers, and such notes in Egyptian documents are unluckily rare enough. I do not find anything in the Assyrian lists comparable to this about the *Chrysanthemum coronarium* in the London-Leiden Demotic Magical Papyrus; "Fine-face" is its name, the "Gold Flower" of the wreath-seller; its leaf is strong, its stem is cold, its flower is golden." Mr. Thompson says (p. xi) that an examination of the plant-lists shows that the Assyrian botanists adhered in the main to a definite arrangement, but beyond the fact that the lists usually begin with the grasses and rushes it is difficult to see what the "definite arrangement" is. Theophrastus classified plants under trees, shrubs, under-shrubs and herbs. The Egyptians recognised four classes, the names of which were derived from typical examples of each group; these were trees, bushes, reeds, and herbs. The Assyrians possibly had a similar arrangement, for they used separate determinatives for trees, aromatic shrubs, reeds, and plants. On pp. xvii and xviii is given a section on the Migration of Assyrian Plant-names, which shows that some of them found their way into the Western languages. Mr. Thompson's remarks on ARMANU = Armonica = Apricot are particularly interesting. On p. 98 Mr. Thompson, speaking of the Castor-oil plant, says that "the synonym in Ahlamè, *bu'su*, the nasty (-smelling) drug is most convincing," but it must be remembered that different peoples have very different ideas as to scents. Castor-oil is a favourite one with the Bisharin and I have known Egyptians in the Delta who preferred castor-oil for dressing salad, not for any medical reason, but because of its scent! It is remarkable that *ladanu* does not occur in Assyrian Medicine, nor have I yet recognised it in Egyptian. At the end of his book Mr. Thompson gives a list of works that he has referred to, but no mention is made of Dr. Schweinfurth's very useful *Arabische Pflanzennamen aus Aegypten, Algerien und Jemen*, published in Berlin in 1912, or of Tschirch's *Handbuch der Pharmakognosie*, published at Leipzig, 1910.

The Composition of some Ancient Bronzes. By G. BRINTON PHILLIPS. 8vo, 15 pp., 2 pls. (American Anthropologist, Vol. 24, p. 129.) 1922.

In this paper the author supplies analyses of specimens which he collected and photographs of some pieces. It is so important to render analyses readily accessible that the results are here summarised:—

				Cu.	Sn.	Pb.	Fe	Co.	As	
Bowl	..	Luxor	..	..	XI dyn.	..	85.8	3.5	8.5	.2
Axe	..	+ 7 Sb.	..	..	XII ?	..	88.9	.2	.6	5.6
Cast hollow	73.7	4.8	19.2	.2
handle.										.8
Nail	..	Memphis	..	..	XXVI	..	74.6	.9	21.3	.3
Fragment	..	"	XXVI	..	92.0	6.5	.8	.3
Bowl	..	Mykenae Schliemann	..	..	..	..	99.4		.2	.2
Sword handle	"	"	99.4	.1		
Thin sheet	..	"	95.6	.1		.9
Fragment	..	Acropolis, Athens	..	..	520 B.C.	..	88.1	9.7	.3	
Axe	"	Crete, corroded	..	..	..	..	68.4	13.5		
"	..	Taormina + 2 Zn.	..	..	600 B.C.?	..	90.3	7.3	.2	.5
Sheet	..	Populonia, Etruria	..	..	300 B.C.?	..	84.3	10.3		
Mirror	..	Carthage	..	..	..	..	82.0	14.4	.6	
Socketted	..	Pickering, Yorkshire	..	..	..	..	83.8	10.2	5.3	.4
celt.										
Sickle	..	Saratov, Russia	..	..	1600 B.C.	..	91.5		6.2	.3
Bowl	..	Ceylon	..	..	XII cent. A.D.	..	77.5	19.6	.2	.4
Mirror	..	China	..	..	1000 A.D.?	..	65.2	9.7	23.2	
Mirror	..	Japan reliefs	..	..	1300 A.D.?	..	73.2	10.8	14.5	
Spoon	..	Korea	..	..	900-1400 A.D.	..	77.2	21.5		.7
Bell	..	Yucatan	..	..	..	..	97.0	.3	1.0	.1
Knives	..	Peru	..	..	..	..	96.8	3.0		
Chisel	..	"	94.3	4.8		.3
Axe	..	"	96.2	3.7		
Ornamented pin	..	+ 3 Zn.	..	..	..	..	93.7	5.0		
Mirror	86.0	13.4		
South American tools	94.3	5.3		
Bolivian tools	5 to 10	Sn		
Cuzco tools	2 to 10			
Tiahuanaco tools	3.9 to 8.5			
						..	3.3 to 7.8			

In Peru a large mass of pure metallic tin was found, showing that the Inca smelters were familiar with it, and could produce regular and uniform alloys in proportion. Cassiterite is found associated with copper in the lodes in Bolivia.

Our gratitude is due to Mr. Phillips for collecting and analysing so many specimens, partly with Dr. Wallace of Pennsylvania University.

Études d'Étymologie Copte. By EUGÈNE DÉVAUD. 68 pp. 1922.

This *Thèse de Doctorat* is one of those highly specialised dissertations which appeal only to the philologist. The whole work depends on the meticulous accuracy of detail, and Dr. Dévaud shows in this, as in his other publications, that he is a master of such work. He has, in this book, published his researches into the etymology of twenty-eight Coptic words; these he divides into three groups:—those derived from the Egyptian, those formed from other Coptic words, and those of foreign origin.

In the first group, M. Dévaud gives examples of the use of each word in Coptic and in Egyptian, and then remarks on the exact meaning in both. The second group

is the most interesting, as showing the derivation of a noun from a verb, *e.g.*, **ΣΕΑΡΙΑΘ** "Death-rattle," from **ΣΩΛ** "To be hoarse." The third group touches on a subject which has already been much worked by other scholars, the derivations from the Hebrew.

In dealing with each word, Dr. Dévaud gives examples of the use first, in Coptic, then, according to the group, in Egyptian, Coptic, or a Semitic language; and concludes with remarks on the meaning, the form, and other details. The references are given in marginal notes.

This is emphatically not a book for the general reader, but equally emphatically it is a book for a scholar by a scholar.

M. A. MURRAY.

Tutankh-aten, a story of the past. By L. ECKENSTEIN. Dm. 8vo. 159 pp. 4s. 6d. (Cape.)

This is a reconstruction of the Egyptian material of the Akhenaten period, which will aid many to realise the actual manner of life, and with no notable misconceptions, such as too often mar such attempts. Wide uncertainty, however, lies on one feature which runs through half the book, the placing of Moses in the scenes. This depends on the value which could be assigned to the traditions in Josephus, Philo, and Eusebius; and in the second place on connecting the princess Termuthus there named, with Mertaten the daughter of Akhenaten. This would involve the exodus having been in the reign of Ramesses II. No reason is given for joining in the Jewish traditions at this point of history.

Luxor and its Temples. By A. M. BLACKMAN. Illustrated by BENTON FLETCHER. 8vo., 200 pp., 24 plates. 7s. 6d. (Black.)

This is a series of well informed chapters on the houses and temples, and incidentally on the history. There is much that will not be found in any of the speculative books which now abound, and the discursiveness of the material will probably make it pleasanter reading to those who are not already familiar with the subject. A large number of translations of original poems and descriptions serve to give the point of view and sense of the Egyptian mind.

Lychnos et Lucerna, Catalogue d'une collection de lampes. By A. OSBORNE and E. BRECCIA. 8vo, 18 pp., 7 plates. 1924. (Soc. Archéologique d'Alexandrie.)

This is a description of lamps collected by Dr. Alfred Osborne. They much resemble those published in "Roman Ehnasya," but not having been obtained with dated connections, they do not add to our fixed points. Besides some dating obtained at Ehnasya, reference should be made to some lamps absolutely dated by being found in burnt houses (Memphis III, pc. xl.). There are 89 specimens clearly photographed in these plates, mostly with figures of classical work, which are not so usual in the Fayum region. The boar, bull, ram, dolphin, and crescent seem to be probably legionary badges. We may thank Dr. Osborne for putting thus on record more material for future discussion whenever the subject is worked up.

PERIODICALS.

Annals of Archaeology and Anthropology, Liverpool. IX, Nos. 3-4.

With this number is issued the war-delayed plate from Vol. VII, with objects from the North Syrian Cemetery, see *ANCIENT EGYPT*, 1917, p. 41. The objects there figured appear to belong to about 650 to 450 B.C. ; some certainly link on before 650, others of Scythian origin cannot be before that, some—as the Attic vases and coins—must come later than 500 B.C. It is very unfortunate that such a cemetery was plundered out, and the grouping lost, for had the groups been known it might have disentangled much of the influences of that very mixed age. The objects now published agree to the limits just stated, but do not help the dating further.

GRIFFITH, F. LL.—*Oxford Excavations in Nubia*. This is another welcome section of the account of Prof. Griffith's work, the previous part of which was noted in *ANCIENT EGYPT*, 1922, p. 60. These sections, and the continuation in the next year, really form a much larger work than many volumes which are published separately, with much over a hundred plates. It is a pity that such a standard publication on Nubian civilisation will not appear as a whole in our libraries.

This section deals with work at Napata. This was in 1912 ; the war supervening, further English work was arrested, and Dr. Reisner took up the ground. An historical outline is given of the Ethiopian dynasty ; here it is said that “the Napata dynasty held Upper Egypt and claimed suzerainty over Middle Egypt. Scarcely a written record of the kings survives before Pi'ankhy son of Kashta.” This might well be amplified by some statement of traces of Ethiopian control before Pi'ankhy's great stele ; so far, they are not commonly known.

The Saite renascence is attributed to the “choice of ancient models by the kings of Ethiopia,” and justly so, as the Ethiopian work in Egypt is an enormous step above what the Egyptian was doing. Some further discussion of the causes of so great a change would be welcome from one who knows Ethiopian work so well. Where were the craftsmen trained ? Was the movement first in the south or in the north ?

A description of the sites around Merowe is given. This must not be confounded with the ancient capital Meroe which was far to the south ; the name appears to mean “an irrigated place,” and is known elsewhere. The ancient name of this district is Napata, and the great temple site is the neighbouring Mount Barkal.

The present report deals with the foundations of the Sanam temple and the treasury adjoining. In the next volume the Sanam cemetery is described. The temple was 225 feet long ; the pylon 136 wide, and the body 95 and 89 feet wide. This is about the size of the temple of Khonsu at Karnak, but with an unusually wide pylon. The foundation deposits of Taharqa were found at the back corners, with small plaques of various materials with the name, pottery and beads.

There were no model tools, except mortar and pestle. Only small outer courses of walls remained, and no capitals were found among the ruins. Of the statues of the temple only fragments remained, one usurped by Paonkhy, and others of later Ethiopians. The remaining blocks of the walls show a procession with the sacred bark, and emblems, the queen heading a procession, attendants and musicians, cubical carts drawn by asses or mules, riders on mules, a row of figures of the Egyptian nomes. On the interior was an inscription of which parts of 180 columns remain. In this Taharqa described how he determined to go north to Thebes, and his festival there, also about founding a temple near Memphis. On the inner pylon was a frieze of kneeling captives of various lands.

The Treasury was a long row of chambers, seventeen in number, covering 850×150 feet. In these chambers had been a great store of valuable material of which an immense amount of fragments remained, including tusks of ivory ruined by fire. The chambers were 44×68 feet, with the roof supported by twelve stone columns. For some reason a second set of 63 smaller columns were placed regardless of the use of the other columns. The conditions under which these were required and placed are difficult to understand.

The small objects in the Treasury were of fine quality, but only fragments remained. The least usual were pieces of rock crystal and glass cups.

In Vol. X the cemetery of Sanam is described, which contained about 1,700 burials. It had been ruthlessly plundered anciently, but not in modern times. There were no ushabtis, and it is concluded that the people could not afford them; as gold and silver were buried, it looks rather as if the use of ushabtis was unknown for private persons. The chambers were often stairway tombs ending in a shallow cave; they differ from early stairway tombs by having end-on loculi, and thus resemble the late tombs of Dendereh. The period is considered to be between 700 and 400 B.C. There were stone and pottery square altars of offering. The alabaster vases mostly agree to the dating, but one or two seem much older. The glazed pottery amulets are obviously of local style, and most of the scarabs also. The revival of interest in earlier times led to making imitations of some early types. The revival of circular scroll borders is remarkable; the silver flies and shells were also made again. Otherwise as a whole the objects are like those of the same period in Egypt.

CROWFOOT, GRACE M., and LING ROTH, H.—*Were the Ancient Egyptians conversant with Tablet-weaving?* This question has arisen over the origin of the girdle of Rameses III at Liverpool. Some years ago it was claimed that this must have been produced by tablet-weaving. However no instruments for this method have been found, and no pieces of work which must have been so produced. The girdle can be copied as to one side, but the other side defies tablet-weaving, at least it would require to work with 789 threads at once. Finally Mrs. Crowfoot, with a very simple loom of primitive type, has succeeded in exactly reproducing the pattern of the girdle. The work would be very slow, depending on much fingering and thought; but what is that to people who wrought the hard stone bowls and narrow-necked vases entirely by hand?

EMERY, W. B.—*Two Nubian Graves of the Middle Kingdom at Abydos.* These were found by Prof. Garstang in 1908; the contents are in Liverpool. The pottery is of the thin black and red ware, bowls with flaring top, like the Qurneh group now in Edinburgh.

Art and Archaeology, Dec., 1923, Feb., 1924.

A long article in these two numbers gives a general outline of the work of the Metropolitan Museum of New York, from 1907-1923, in Egypt. Much of this has been reported in this Journal year by year, but an outline of the whole may well be now stated. At Lisht, the north pyramid of Amenemhat I, and its temple, have been cleared. The temple plan differs from others; the limestone stele false door was found, now in Cairo, and the pink granite altar now in New York. No plans have yet been published, however. West of the pyramid was the cemetery, including the Senebtisi tomb, the only thing yet published. In 1908 the pyramid side was cleared for the entrance, and many blocks from IVth dynasty tombs were found re-used, also a great false door of granite for Amenemhat himself, used up for building. The plunderers had tunnelled down the side of the plugging. In the chamber at the end of the passage is a shaft thirty-five feet deep, supposed to lead to the burial, but all now under water.

In 1908 the pyramid of Senusert I to the south was examined. Also a party went to the Khargeh Oasis to examine the temple of Darius and the Christian necropolis.

In 1909 more was done at the Senusert pyramid, the sculptures along the causeway were cleared, and the plan of the temple.

In 1910 more clearance was done at the temple of Darius, and another party went to the Wady Natrun monasteries, which were completely planned.

From 1907 onward Mr. N. de G. Davies was engaged on the copying in facsimile the Theban tomb paintings, of which the tombs of Nekht and of Antef-aquer have been published.

In 1911 more of the monasteries of Wady Natrun were planned and more was done at the Darius temple. The palace of Amenhetep III at Birket Habu was cleared and planned in this and following years. The XIth dynasty tomb of Daga at Thebes was cleared, finding some original coloured reliefs and also Coptic inscriptions.

In 1913 a whole mastaba of the Vth dynasty official Perneb was removed from Saqqara to New York. At Thebes the causeway of the temple of Mentuhetep was found and cleared. More was done round the north pyramid at Lisht, recording a late town which overlay the tomb shafts of the XIIth dynasty.

In 1914 work was around the south pyramid of Lisht, where the two statuettes of Senusert I were found (ANCIENT EGYPT, 1915, 145, 192).

In 1915 some tombs were cleared and planned, and more of the palace of Amenhetep III.

In 1916 the ground was examined between the two causeways of the temples of Deir el Bahri. In burials of the XVIIth and early XVIIIth dynasty the scarabs were found upon the third finger of the left hand. Several fine burials were obtained.

In 1917 and 1918 more was done on the palace, and also at Lisht. A foundation deposit there contained a sledge of cedar, probably used to transport the statue of Senusert in the funeral procession.

1919 a great tomb of the reign of Psamtek I, belonging to an official Pabasa, was excavated; it is one of the largest rock cuttings of that age, with a court sunk forty feet deep in the hill. From here came the great black basalt Taur and shrine now in Cairo. A re-interred body of an infant son of Amenhetep I was also found.

In 1920 the clearance of the palace site of Amenhetep III was finished. The tomb of Mehenkwetre was examined, and the chamber full of models was discovered, though the tomb was supposed to have been exhausted by other explorers. This series of models is the finest yet seen, both for number and detail of workmanship. It has been published to some extent in journals, but a complete colour reproduction must be issued. The complete burial of a retainer of that chieftain was found near by.

In 1921 further excavation was continued at the pyramid of Amenemhat I, again removing part of the village of the XXIInd dynasty, which overlay the mastabas of the XIIth. Two small objects are historically valuable, an ivory box lid with the name of King Khety inlaid with carnelian, and a glazed plaque of King Khenzer of the XIVth dynasty. The unfinished tomb of Mentuhetep IV and its platform were searched. Further study of the XIth dynasty temple of Deir el Bahri convinced Mr. Winlock that the tombs of the princesses were earlier than the visible structure, and he proceeded to open the two tomb shafts of Oashet and Mayt. In the former was a splendid stone sarcophagus carved and painted, inside and out, with scenes of daily life and offering. Further exploration of the Coptic monasteries was continued.

In 1922 work was continued at Lisht and at the Mentuhetep temple of Deir el Bahri, where the foundation deposits were found, with not only samples of material but also tool models. A packet of family letters and accounts of the XIth dynasty were found in the tomb of a retainer. The tomb of Khety the master-spinner was recovered, which had been appropriated and re-lined with sculptures in the XXVIth dynasty. The important work of Mr. Davies was continued after the war, in the clearing and copying of the Theban tombs.

The staff was almost entirely diverted to the assistance of Mr. Carter when the tomb of Tutankhamen was found. This record covers a large number of important and interesting results, during twelve years of work. The world can but regret that the large staff engaged have not found it practicable to publish more than one tomb, from this great amount of discovery. There is a serious danger that fifty years hence there will be no permanent record of most of the excavations, which serve to fill the museums of the present time, and the benefit will not be reaped of that improvement in methods which distinguishes the present working from that of Belzoni and Caviglia.

Bulletin of the Metropolitan Museum of Art, December, 1923.

After an outline of the work on the tomb of Tutankhamen there is a full account of the Theban necropolis excavations. These have been along the great tombs of the cliff north of the Hatshepsut causeway. Any one who has seen that cliff will remember the lines of wall running up the slope, and dividing the several tomb properties. Here was cut the great tomb of Khety who was over the spinners, probably head of the royal linen factory, as his name is on the linen of Oashet in the XIth dynasty. The tomb lasted in good state to the XIXth dynasty, when Nebneteru the high priest of Amen recorded his visit. After that the chapel was wrecked by stone workers, but three passages in succession led to the burial chamber, which still retains a large part of the painted figures of the tomb furniture, like that on the wooden coffins of this age. A fragment of the top of the great stele has the tied lotus flowers, and in the slope of the arched top the *zed* pillars with sloped tops.

Another tomb had a serdab chamber for statues cut high up in the cliff above the tomb entrance. Here were found two squatting figures of the archer Neferhetep, one of quartzite the other of alabaster. In tomb pits of the XIth dynasty were found two mummies of dancing girls with tatooed patterns in diagonal squares of 5×4 spots, like the spot patterns on blue glazed figures of girls.

In clearing the ground between the causeways of the XIth dynasty temple and that of Hatshepsut, a large hollow was found in which rubbish had been thrown by Tehutmes III. Here were dumped the smashed up statues of Hatshepsut which had adorned her temple. Among these there were five complete figures of the queen in granite, kneeling with an offering vase. Many sketches by artists have been found here on flakes of limestone. Strangely this rubbish pit had been made in the flank of the Mentuhetep causeway; and after the XVIIIth dynasty that causeway wall had been replaced across the filled up pit.

An account of the development of the Akhenaten style is given by Mr. Davies, with examples of that king and Tiy worshipping Atmu. A figure of a royal nurse has four young princes on his knees, sons of Amenhetep III. One is named Akheperure, one was the heir Tehutmes who died young, one would be Akhenaten; may not the fourth have been Tutankhamen, who calls Amenhetep III his father? There is a hymn to Amen scrawled on the walls of tomb 139, dated in the third year of a king *Akheperure-Mery*, whose personal name was *Neferneferuaten Mery* A suggestion is made that the queen of Akhenaten left him, and joined the Amen party, ruling at Thebes as a rival. There seems no room for a reign of three years just before or after Akhenaten. There is no date of his before year V, and it was supposed that he overlapped the last five years of his father as co-regent. But it might be that another son was co-regent, who died, and Akhenaten took over his years of reign into his own.

Journal of the Manchester Egyptian and Oriental Society. No. XI. (Longmans.) 1924. 7s. 6d.

The only Egyptian article in this number is that of Mr. Lewis on *Mother Worship in Egypt*. To much of this every one would agree. But other matters are stated to be connected with the Great Mother which are doubtful. "The primitive magico-religious attitude of the earliest Egyptians was brought into being by the passion for life . . . and this it was that ultimately led the primitive Egyptian into the belief of a Great Mother Deity." This hardly seems to fit with the known series of Protective Goddesses, Nut, then Isis, then Hathor, and lastly Mut. It was not an ultimate belief, but the most primitive. Then an early limestone figure from Hierakonpolis is said to be "of the god Min" and "intended to represent a female deity." Further "Min was at one time a female deity." It is hard to read this seriously. "Water, shell, procreation, mother-deity, father-deity. These are the ideas expressed by the Min statues." This is certainly an assertion which will take a great deal of proving. Then we read that a "girdle of shells has evolved into a girdle of Hathor beads." Pure assertion. The steatopygous figures are said to be the Great Mother. If so, why are they only found in the earliest graves? They obviously represented a race which was disappearing. We shall not get any further by such assertions and forced connections, only due to theorising on vague matters without any proved relationship, and without the ascertained historical basis.

NOTES AND NEWS.

It is generally recognised that white of egg was used by Egyptians to fix colours. The surfaces of the early tombs of the XVIIIth dynasty, and of temple sculptures of the XIIth dynasty will bear flooding and scrubbing, without any loss of the ochres and haematite, which were rubbed in and polished. How white of egg could be thus used seems difficult, as it is so thick and tenacious. An entry in the early proceedings of the Royal Society, 8 August, 1666, describes a Mr. Streeter preparing colours by "an egg beaten yolk and white together with a few shreadings of a fig tree branch, whereby the egg was reduced to an oily substance, without any tenacity or ropiness, so that it would be ductile, and fall on the pencil like oil." This is doubtless due to the well-known digestive power of fig juice, and as figs were common from prehistoric times in Egypt, it was very probably the mode of use by the Egyptians. Though Theophilus (*De diversis artibus*) often mentions the use of white of egg (*lib. I, xv, xxv, xxxi, xxxii, xxxiv, xxxv*), he does not seem to have known of the mixture with fig juice.

From time to time the data about the sinking of the Delta have been put on record in this Journal, and a new element should be stated. Along the coast at Bulkeley, east of Alexandria, there are water-laid strata with Roman rubbish up to 18 feet over sea level, and sloping beds of debris washed down from Roman ruins extend up to 23 feet over present sea. This seems to imply that the lowest sea level has been as high as 18 feet, and the wash of high seas extended to 23 feet. Hence the coast after sinking has risen again about 20 feet. The movement has, therefore, been greater than was supposed, and has been checked by some reversal.

It is not generally known that there are large remains of the canal which supplied Alexandria in Roman times. These are visible about two or three miles east of Kafr Dawar, to the north of the present canal. By the time a canal had become fenced by banks of clearings forty feet high, it was easier to shift it and dig a new canal, rather than carry the clearances higher. Thus four lines of canals were successively formed, and can be traced by banks sometimes half a mile long covered with vegetation. The cause of this amount of clearance about here must have been a flattening of the gradient, and as this part is between the present lakes of Mariut and Edku, it is obviously a low part of the course.

The law of 1883 by which Maspero encouraged excavations, and by which the Egyptian Government have profited so largely in discoveries, is now to be changed, and the Government will claim everything that is desired for Cairo. This will greatly reduce the amount of work done in future.

The British School expects to resume the work for the earliest civilisation, found in the Badari district ; this will be carried on by Miss Caton Thompson, and (later) Mr. and Mrs. Brunton.

The Egypt Exploration Society will resume its work at Amarna, by Mr. Newton and Mr. Greenlees.

Mr. Starkey has passed on from the British School to work for Michigan University, seeking papyri, probably at Maabdeh.



THE KING OF ALL THE NOBLES, DEGRADED AS ABU NERUS.
THE MOCK KING AT THE NEW YEAR.

ANCIENT EGYPT.

THE KING OF ALL THE NOBLES

ON the 10th September, the first day of the Coptic solar year, the river has reached to about its highest point, and on this day—the *nerús*—the people give themselves up to the pleasures of the carnival. For three days it is all up with the rule of the Turks; every little town chooses for itself in its own way, and from its own midst, a ruler (*abu nerús*), who has a towering fool's cap set upon his head and a long spectral beard of flax fastened to his chin, and is clothed in a peculiar garment. With a long sceptre in his hand, and followed by a crowd of correspondingly dressed bailiffs, hangmen and scribes, he promenades the street, and turns his steps straight to the hall of the chief magistrate. Everyone bends before him, the guards at the door make way, the governor of the province or the town has the humour to let himself be ousted, while the new dignitary seats himself on his throne and holds a most rigorous criminal investigation, from which even the displaced functionary and his abettors do not escape. The hangman's assistant of yesterday is sentenced to be hanged, the bastinadoer to be beaten, the *bash katib*, or chief secretary, to imprisonment, immense taxes are imposed, and all decisions are set down on a sheet of paper. There is no pardon for the condemned unless on the payment of a few piastres as bakhshish. Thus they move from house to house, the taxes being levied in the form of bakhshish. Three days does the capricious rule of the ephemeral tyrant last: at length he—that is, his dress—is condemned to death by burning, and from the ashes creeps out the slavish Fellah. In the time of good-natured Mohammed Ali the *abu nerús* is said to have ventured even to approach his throne; but the harmless jest has now fallen a good deal out of practice.

C. B. KLUNZINGER, M.D.

[Such is the only account which has been preserved of this curious survival, given in Dr. Klunzinger's book, *Upper Egypt: Its People and its Products*, in 1878. It is illustrated in our frontispiece by the only published figure of the mock king, fortunately preserved by Rifand, showing that his festival was at date harvest, the ancient New Year. This is now much further explained and carried back by the title recorded in p. 115 of a "New Year King of all the Nobles," a position held by the highest nobles in the XIIth dynasty. Such could not arise during the dynastic rule; it points to a survival of a much earlier age. That it was a new year king implies an annual election, like that of the consuls at Rome. It was apparently a relic of an older kingship of prehistoric time, a permitted semblance of the ancient rule allowed to the body of nobles of the old race. It was thus parallel to the king of the Saturnalia in Italy, a permitted festival of the enslaved aborigines, when the old stock were allowed a memory of their ancient liberty in the dying year.—F. P.]

A TABLET WOVEN BAND, FROM QAU EL KEBIR.

AMONG the wrappings of Coptic bodies of about the VIth century A.D. found at Qau el Kebir by the British School, there were portions of narrow woven bands in coloured wool, now at South Kensington Museum. The band is about 1 cm. broad, the warp is of two-ply corded wool in four colours—red, green, yellow and blue; the weft is of coarser brownish thread. The pattern in the centre is one often found as a border decoration on Oriental bands, e.g., a band from Persia figured by M. Lehmann Filhes, and it is also shown on the centre of others from Tiflis and Damascus.¹ The design is by her described as “Pfeilspitzen” arrow-points, a good enough description, though it is more tempting to fancy it an attempt at a lotus pattern . An examination of the texture shows that the warp threads are twisted together, and the weft thread lies in the middle of the little bundle of cords; its identity with tablet weave is, therefore, obvious. For a further proof I have woven samples of the pattern in tablet weave and double weave, and with the same number of threads in each. A glance at the photos of back and front of both, show most convincingly the likeness between the band from Qau and the modern tablet woven sample (Fig. 1).

For this reproduction twelve tablets were used, six threaded right and six threaded left. Of these the three outer ones on either side give the border, the six inner the pattern. From left to right the three border tablets were threaded, one with four blue threads, one with four red and one with four yellow, and the three on the other side the same in reverse order (Fig. 3).

For the centre pattern, taking the numbering of holes on the tablets as given by Pralle :—²

First tablet : First hole red, second green, third green, fourth green.

Second tablet : First hole red, second red, third green, fourth green.

Third tablet : First hole red, second red, third red, fourth green.

The three centre tablets on the other side were threaded in the same way in reverse order.

Is it, then, certain that the band from Qau, being in tablet weave texture, must have been woven on tablets, or is there any other procedure by means of which the same result can be obtained?

Now tablet weaving is not primitive in character; it is a highly evolved little craft, and must have been preceded by bands twisted by other simpler methods; samples of some of these are given by M. Lehmann Filhes. One, not cited by her, with which I have experimented, is the Algerian method of producing the chevron pattern braids known as “rbib” (Fig. 2) and “boršman,”³ very like tablet woven bands in appearance, but readily distinguishable, as they are always sewn on to the garments with the weft threads themselves. The twisting of the warp threads is produced by an assistant, who holds the looped ends of one end of the warp while the weaver puts the weft thread through at the other.

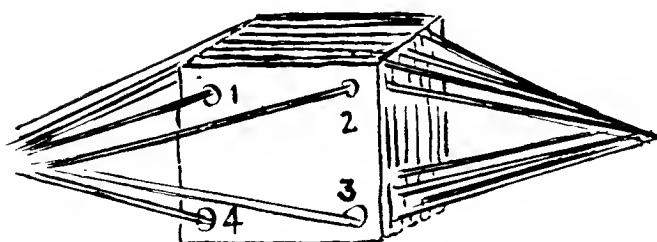
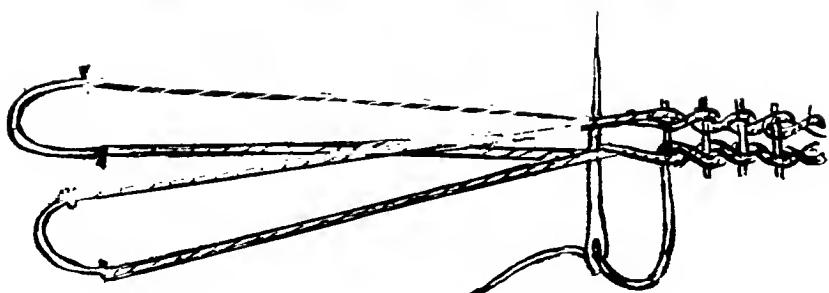
¹ *Brettchen Weberei*, pp 25, 26

² *Tablet Weaving*, tr. by Peach.

³ *Le travail de la laine à Tlemcen*, Bel et Ricard, Alger, 1913, p. 193.



1. IMITATION OF COPTIC BANDS BY TABLET WEAVING.



2. SIMPLEST FORM OF RIB, WITH FOUR THREADS.
3. NUMBERING OF TABLETS.

Only a limited number of threads are manipulated in this way, the most, I believe, in the “boršman sdasi,” obtained by six pairs of threads, held on the fore, middle and third finger of each of the assistant’s hands. While experimenting I found my assistant’s patience soon exhausted, and placed my loops instead on some pegs and continued to weave a sample, not sewn on to a garment, which I believe to be quite indistinguishable from tablet weave. The pleasure at getting rid of the assistant soon evaporated in the fatigue of moving from one end of the warp to the other to effect the alternate twisting and weaving. One could see how the need might have led to the insertion of a contrivance to twist the threads in the middle, where the tablets now are. But these are but imaginings. I learnt only one thing for certain from my experiment, and that was, that in bands produced by hand twisting one characteristic of tablet weave disappears, *i.e.*, the reverse, which becomes necessary whenever the twists close up on the tablets. The twisting being at the free looped ends of the warp, a reverse is never necessary, although, of course, it would be perfectly possible to put it in as part of a pattern if desired.

Now the longest portion of the Qau band has no reverse. When making the tablet woven reproduction I found that a reverse became imperative three times in 18 inches. To avoid it I untied the warp ends three times and untwisted them. But I was working with a very short warp—only 4 feet; with a longer one the reverse will not come so often. M. Bel draws attention to this fact in his account of one of the Tlemcen tablet weavers¹ who, because he wove his braids in wool, a material which will give, and with a very long warp, did not often have to use a reverse. Instead, he pushed his twists back behind the little reed or comb which hung at the back of the tablets and made them into a sort of tassel when he had finished the piece. The presence of a reverse, then, especially if it is no part of a pattern, can be regarded as good proof that tablets have been used, but its absence is not conclusive to the contrary; the Qau weaver may have untwisted his warp ends or, more probably, used a very long warp.

What will help much more to a decision—it can never, from the nature of the case, be absolutely certain—is a consideration of what evidence there is of the use of tablets in the Coptic period. There is a fine set of 25 wooden four-holed tablets in the Musée du Cinquantenaire at Brussels, purchased at the Guimet sale, together with the mummy of Euphemiaan (*La Brodeuse*) and said to have been found in her tomb. Whether this is so or not, M. Capart is of opinion that they certainly came from the Gayet excavations at Antinoe, and are of the Coptic period. According to the “Catalogue d’étoffes anciennes,” published by the Museum (written by I. Errera), the textiles said to have been found in this tomb, some of which are still in position on the mummy, are considered to be probably of the period IVth–VIth century A.D. Curiously enough, there are no narrow bands among these textiles—nothing which could by any possibility have been tablet woven. The only Coptic bands in tablet weave that I know of are two described and figured by Lehmann Filhes, said to have been found at Akhmim.

In view of the fact that the Qau band has 48 threads in it, a number difficult to manipulate by hand twisting, and the evidence of tablets and other bands in similar weave from the Coptic period, the balance of probability seems to me in favour of its having been tablet woven.

G. M. CROWFOOT.

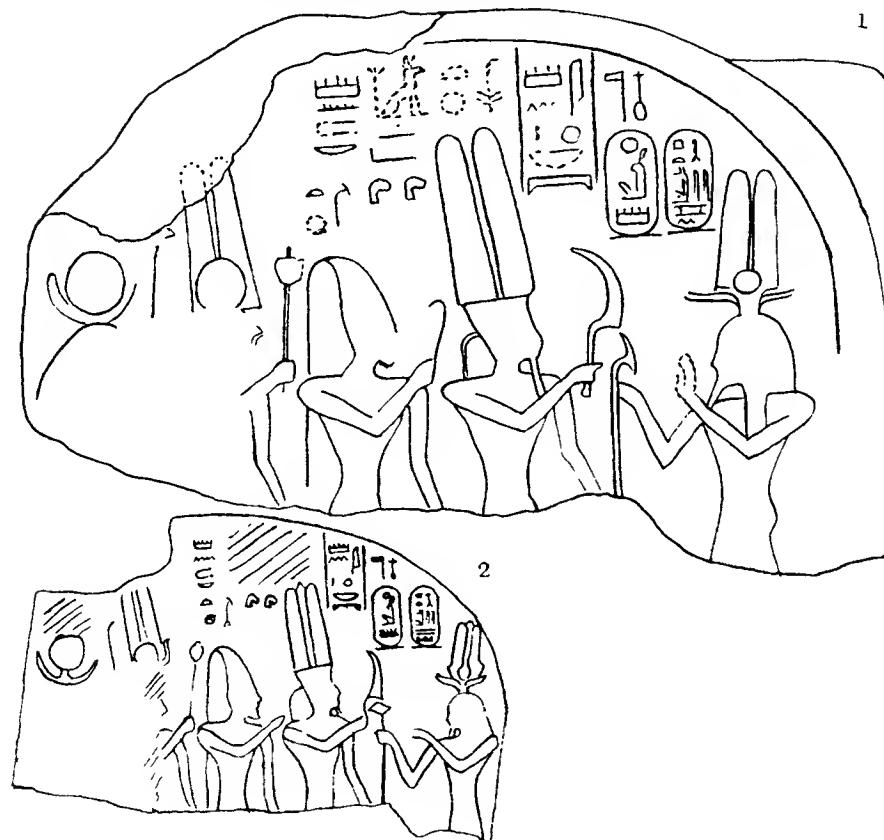
¹ *Le travail de la laine à Tlemcen*, p. 232.

STÈLE DU PHARAON SÉTI I^{ER} TROUVÉE À TELL-NEBI-MENDOU EN SYRIE.

LA mission archéologique française en Syrie a découvert en 1921, à Tell-Nebi-Mendou, la partie supérieure d'une stèle en basalte gris-noir, érigée par le pharaon Séti I^{er} sans doute pendant une de ses campagnes contre les Khétas.

Cette stèle fut publiée en 1922 dans le journal *Syria* (III volume) par M. Pézard, chef de la Mission, avec la collaboration de Messrs. Bénédite, Boreux et Montet.

Dans son article, une tentative est faite pour rétablir la scène entière de la stèle et pour lire les inscriptions qui s'y trouvent.



Après une minutieuse étude de la photographie de cette stèle, accompagnant l'article de M. Pézard, j'ai eu la surprise de constater que la reconstitution, que donne M. Pézard, de la scène en partie effacée de la stèle, ainsi que l'interprétation des inscriptions de la stèle, suggérée dans l'article cité, demandent sur beaucoup de points à être rectifiées.

J'ai trouvé donc nécessaire, dans l'intérêt de la science, de donner une explication des images et des inscriptions de la stèle plus exacte au point de vue de l'archéologie égyptienne.

Les figures représentées sur la stèle ne sont conservées que jusqu'aux genoux (Fig. 1), transcrit de la photographie ; Fig. 2, la même stèle selon M. Pézard.¹

¹ Dans la seconde cartouche, il faut lire le dernier signe hiéroglyphique mmm *n* et non pas mm *du* comme le propose M. Pézard.

Du côté droit de la stèle le pharaon Séti I^{er} est debout devant quatre divinités. Sa coiffure consiste de deux longues plumes, placées verticalement sur un petit disque, qui, à son tour, est posé sur deux cornes de bétail.

La main gauche, avec les doigts en l'air et la paume tournée vers le dieu, fait un geste d'adoration, la main droite est allongée horizontalement, la paume tournée en haut. Elle se rapproche de la main droite de la première divinité en croisant le sceptre *ouas* que celle-ci tient à la main.

Au-dessus de la figure du pharaon se trouve gravée la légende.

“ Dieu bon, constant par la vérité de Râ, Séti, aimé de Ptah.”

La première divinité qui se tient debout en face du pharaon est le dieu Amon-Râ. Il est coiffé d'une couronne, ornée de deux longues plumes verticales et derrière les épaules, en dessous de la couronne, descend un ruban étroit.

Le bras gauche du dieu est baissé en avant et tient le sceptre *ouas*. Le bras droit, soulevé à partir du coude, est armé du *khopesh* dont la pointe est dirigée vers le dieu. D'après M. Pézard, le sceptre *ouas* n'est pas tenu par le dieu Amon-Râ mais se trouve dans la main droite du pharaon Séti I^{er} et ceci oblige M. Pézard à donner au sommet du sceptre une forme tout-à-fait étrange. La confusion provient de ce que la main droite du pharaon se trouve en travers du sceptre *ouas*.

Mais des cas analogues se rencontrent bien souvent sur les monuments égyptiens. Nous pouvons les voir par exemple : sur un relief du temple funéraire¹ de Séti I^{er} à Kourna (Fig. 3) ; sur la scène d'adoration de Anhour (L.D. III, 223) on peut même voir le pharaon Ramsès IV, qui fait à Anhour l'offrande d'une figurine de Maât, recouvrant complètement de sa main la tige du sceptre *ouas* tenu par Anhour (Fig. 4), sur un relief de l'époque de Ramsès I^{er} (Fig. 6), etc.

Au-dessus de la figure du dieu Amon-Râ on lit sur la stèle de Tell-Nebi-Mendou la légende, “ Amon-Râ, maître du ciel.”

La seconde divinité est aussi debout : c'est, à ne pas s'y méprendre, le dieu Set, tel que nous le voyons représenté sur la fameuse stèle de l'an 400, autrefois publiée par Mariette² (Fig. 5). Comme sur cette dernière, la coiffure du dieu consiste ici d'une haute tiare avec un étroit ruban, qui y est attaché un peu au-dessous de la pointe, et qui retombe derrière le dos du dieu. Ce ruban n'est pas conservé tout entier, mais ainsi qu'on le voit sur la stèle de l'an 400, il devait descendre jusqu'aux mollets et se partager en deux à sa pointe inférieure. La forme étrange que M. Pézard avait cru reconnaître dans la tiare du dieu, provient, très probablement, de la fissure horizontale qui, dans l'original, traverse la coiffure de Set (*Soutekh*) et d'un côté touche au dieu Amon-Râ et de l'autre à la divinité posée derrière Set (*Soutekh*).

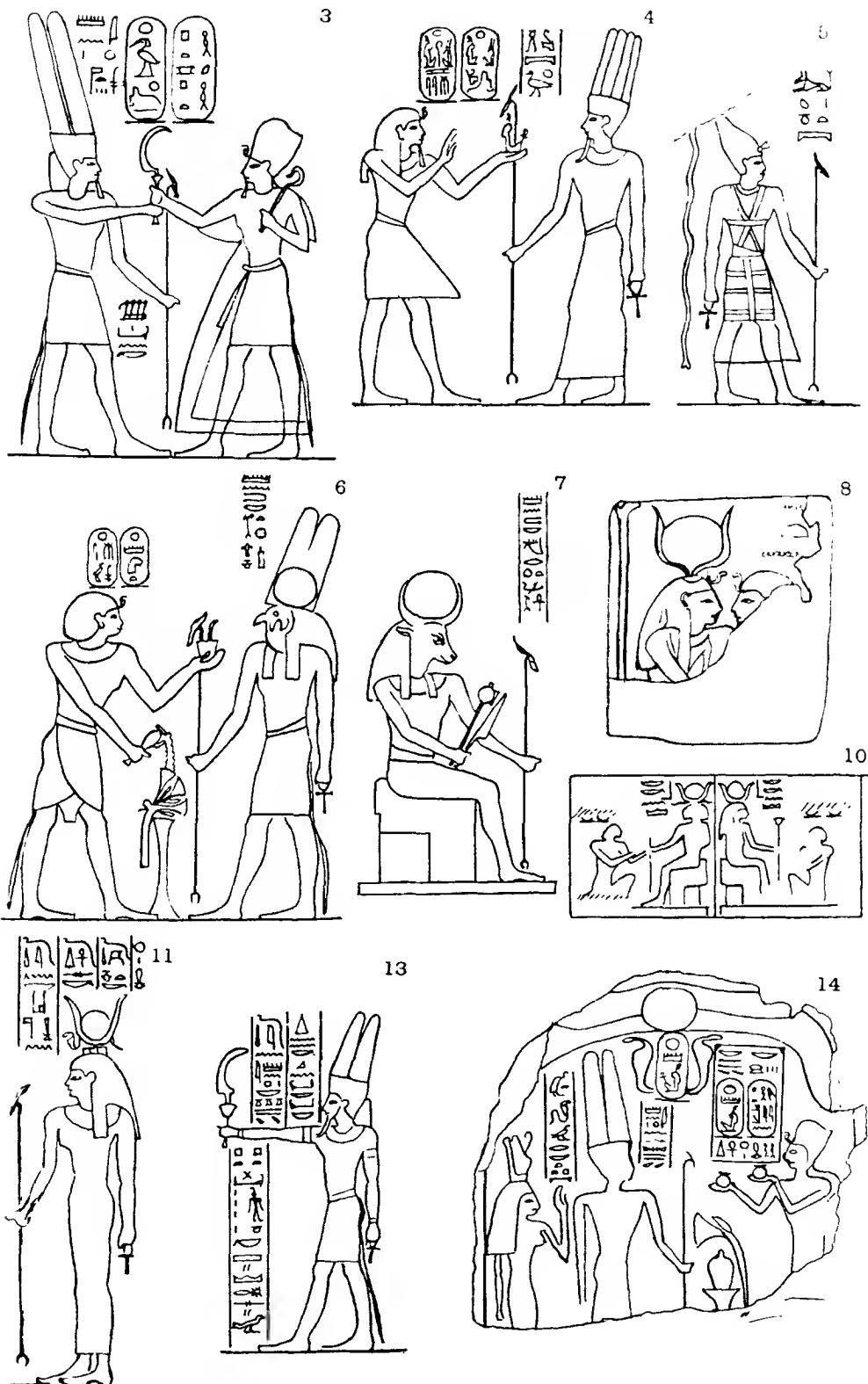
Une tiare semblable à celle portée par le dieu Set (*Soutekh*) sur la stèle de Tell-Nebi-Mendou paraît aussi sur la tête d'une divinité syro-égyptienne, décrite par Mr. Griffith comme figurine du dieu Set.³

Le bras droit du dieu, soulevé depuis le coude, porte un objet de forme étrange, qu'il n'est pas facile de déterminer : c'est peut-être une espèce de lituus ou bien un petit bouclier d'une forme étrange. Le bras gauche baissé en avant est cassé en bas et la main manque. Le visage du dieu n'est pas bien distinct, mais on peut seulement remarquer que la ligne du menton descend un peu plus

¹ Mariette, *Ibydos*, Tome 2, pl. 54.

² Mariette, “ La stèle de l'an 400,” *Revue Archéologique*, 1865, p. 170.

³ F. Griffith, “ The God Set of Ramses II and an Egypto-Syrian Deity,” *Proceedings of Soc. Biblical Archaeology*, 1894, Vol. XII, p. 87.



qu'habituellement dans les figures égyptiennes. Elle se termine au bout par un trait oblique représentant la pointe d'une barbiche. Au-dessus du dieu à tiare, il y a une inscription qui se laisse distinctement reconnaître sur la photographie de la stèle. Elle se lit  , et ne contient dans aucun cas le nom du dieu *Rechef* que M. Boreux voulait y reconnaître. Comme toutefois au-dessus des plumes du dieu Amon-Râ, il y a un espace correspondant aux colonnes qui contiennent les noms des autres divinités, et où sont conservé des traits indistincts, mais on peut les prendre en tout cas pour des restes de signes hiéroglyphiques ; il serait peut-être juste de supposer que c'était le nom  *Soutekh* qui se trouvait à cette place. Dans ce cas le signe  ne serait pas à lui tout seul le nom de la divinité représentée en dessous, mais devrait être considéré comme déterminatif du dieu *Soutekh*.

Il faudrait donc lire toute la légende, " *Soutekh (Set), grand par force.*"

La troisième divinité debout est le dieu égyptien *Mentou*. Il est représenté avec une tête d'épervier dont on peut bien reconnaître le profil sur la photographie de la stèle. Sa tête est coiffée de deux longues plumes verticales, entre lesquelles se trouve placé un disque (cf. la représentation du dieu *Mentou* sur la Fig. 3). A l'avant de la coiffure il y a une trace d'*uraeus*, qu'il est impossible de prendre pour l'espèce de corne, représentée dans le dessin de M. Pézard.

Le bras droit du dieu, soulevé depuis le coude, tient la hache de guerre associée avec ce dieu (voir sur la Fig. 7).

Le bras gauche de *Mentou* est baissé de la même façon que celui du dieu *Set*, qui le précède et, tout comme la main gauche du dieu *Set*, la main de *Mentou* n'est pas conservée.

Il est assez vraisemblable que les deux divinités aient tenu de la main gauche baissée le signe *ankh* comme le tient par exemple le dieu *Anhour* (Fig. 4) et les dieux *Mentou* (Fig. 6) et *Amen* (Fig. 12). Au-dessus de la figure du dieu se trouve la légende, " *Mentou, maître de Ouast* " (Thèbes).

La quatrième et dernière divinité est très probablement une déesse debout. Son image est très mal conservée. On voit bien l'ornement surmontant sa tête, qui consiste d'un disque flanqué de deux cornes (disque de la lune) et, ce qui est très important, l'arrière de sa coiffure. D'après celle-ci il est absolument impossible de supposer que cette divinité soit le dieu *Khonsou*, comme le propose M. Pézard, car si le disque rappelle celui du dieu *Khonsou*, la tête de ce dieu apparaît toujours nue et son cou orné du symbole *menat*, qui a une forme très caractéristique. Ici, par contre, la divinité a la tête couverte d'une étoffe, comme l'ont ordinairement les déesses ainsi quelquefois des divinités mâles à têtes d'animaux, par exemple *Apis*, *Thouth*, *Mentou* (cf. Figs. 6, 7, 8, 11, 14).

Ici toutefois la présence d'un sceptre lotiforme devant la divinité indique clairement une déesse.

La supposition la plus vraisemblable serait de reconnaître ici la déesse *Hathor* dont l'attribut ordinaire est le disque lunaire. En effet, nous savons bien que la déesse *Hathor* était vénérée en Syrie. Son image apparut sur plusieurs monuments trouvés à *Byblos* et sur une des stèles qui la représentent recevant l'hommage d'un pharaon, où elle est nommée " *la Maîtresse de Byblos* " ¹ (Fig. 8). Sur

¹ Erman, " *Die Herrin von Byblos*," *Zeitschrift f. Äg.* S., t. 42, p. 109 ; Renan, *Mission de Phénicie*, p. 179 ; Maspero, *Recueil de travaux*, Vol. 11, p. 120 ; M. Montet, " *Lettre à M. Clermont-Ganneau*," *Comptes Rendus de l'Académie des Insc. et Belles Arts. Bul.*, mars-juin, 1921, p. 165.

deux des stèles elle tient dans une main le sceptre lotiforme des déesses qui se retrouve sur notre stèle (Figs. 9, 10).

Une autre supposition serait de voir dans notre déesse la déesse Nephthys, compagne de Set qui quelquefois, bien que rarement, porte au lieu de son symbole ordinaire (𓁑) un disque lunaire¹ (Fig. 11).



La présence de Set-Soutekh sur notre stèle pourrait donner quelque consistance à cette supposition, car sur plus d'une stèle nous voyons la déesse Nephthys accompagnant ce dieu.²

¹ Lepsius, *Denkmäler*, Abt. III, pl. 124B.

² Lepsius, *Denkmäler*, Abt. III, pl. 34A, 34C, 124B, 200C.

Le sommet du sceptre lotiforme se trouve placé très haut, sur notre stèle ; on peut citer comme comparaison celui de la déesse Néphthys sur la stèle No. 27,572 du Musée du Caire, à côté de laquelle se dresse très haut un sceptre lotiforme avec un petit Harpocrate au sommet.¹

Ayant examiné, à tour de rôle, tous les détails de la stèle, qui n'ont pas été bien compris par son premier éditeur, il nous reste à examiner le sens exact qu'on peut attribuer à la scène représentée sur la stèle de Tell Nebi Mendou.

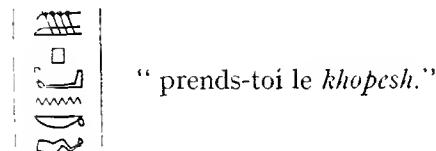
Pour commencer, examinons la corrélation des deux figures, celle du dieu Amon-Râ et du pharaon Séti I^{er}.

La position des mains du pharaon doit au premier lieu attirer notre attention : il tient la main gauche en faisant un geste d'adoration, tandis que la main droite est tendue horizontalement comme si elle attendait à recevoir quelque chose de la part du dieu Amon-Râ. La même disposition des mains se remarque dans la figure de Ramsès II sur la stèle No. 34,504 du Musée du Caire (cf. Fig. 12), où ce roi s'apprête à recevoir le sceptre *haq* et le fouet *Nekhekh* que le dieu Hor-akhouti incline vers la main tendue du pharaon.

Sur notre stèle c'est du *khopesh* qu'il s'agit et c'est vers cette arme tenue par le dieu Amon-Râ que la pharaon tend la main.

Ce moment important de la remise par le dieu de l'arme victorieuse, par laquelle le pharaon devait exterminer ses ennemis, se trouve représenté dans toutes les phases consécutives sur les stèles égyptiennes ayant trait aux victoires du roi²

Ordinairement sur ces stèles l'image du dieu est accompagnée de la légende suivante :—



C'est à la remise du *khopesh* que se rapporte le passage de la grande inscription de Merenptah à Karnak (lignes 28-29) où le dieu Ptah apparaît au roi effrayé par l'approche de Libyens. "Alors," dit le texte, "Sa Majesté vit en rêve comme si une statue de Ptah se dressait devant le pharaon v.s.f. Le dieu était de hauteur pareille à . . . Il lui parla : 'Prends (le)' en lui tendant le *khopesh*, 'et repousse de toi le cœur timide.' Le pharaon v.s.f. lui dit 'Voilà . . .'"

Le moment final de la prise du *khopesh* se trouve représenté sur la stèle No. 34,510 du musée du Caire : là le pharaon Ramsès II a déjà saisi cette arme par le bas du manche, pendant que le dieu Hor-Akhouti la tient encore dans la main.

La même scène se rencontre sur d'autres monuments : par exemple, sur la stèle d'Israel³ sur un relief du temple de Séti I^{er} à Kourna (Fig. 3), mais ici la

¹ W. Golenischeff, "Eine neue Darstellung des Gottes Antaeus," *Zeitschrift für Äg. S.* Band 32, seite 2.

La photographie jointe à l'article laisse assez nettement reconnaître au-dessus du disque surmontant la tête de la déesse le signe hiéroglyphique  légèrement écrasée. L'explication de M. Daressy, qui veut voir  dans ce signe, ne semble pas soutenable. ⁴

² Voir, pour l'époque de la XIX dynastie, Lepsius, *Denkmäler*, Abt. III, pl. 129, 139, 140, 144, 186, 207, 209c, 209d, 210, 211, 218c.

³ Voir Stèle d'Israel chez Lacau, *Catalogue général du musée du Caire*, et Lepsius, *Denkmäler*, Abt. III, pl. 20c.

main de la divinité est au bout du manche tandis que le pharaon saisit le *khopesh* en posant sa main au-dessus de celle du dieu.

La direction dans laquelle est tournée le *khopesh* n'est pas partout la même : le plus souvent la pointe s'incline vers le roi auquel la divinité remet l'arme, mais quelquefois, comme sur notre stèle, cette pointe est tournée vers la divinité¹ (Fig. 13).

Les trois dieux qui viennent après Amon-Râ, sur notre stèle, semblent tous suivre l'exemple que leur donne leur aîné : ils ont tous l'air de vouloir remettre leurs attributs au pharaon Séti Ier. C'est l'objet rappelant, soit un *lituus*, soit un bouclier, que le dieu Soutekh tend en avant, et c'est son arme (une massue de guerre) que le dieu Mentou tient à la main de la même façon que Amon-Râ tient le *khopesh*.

Enfin la hauteur à laquelle arrive le sceptre lotiforme de la déesse ne peut s'expliquer qu'en admettant qu'il est soulevé pour être ainsi remis au pharaon. Sans doute, la déesse le tient en ayant le bras soulevé depuis le coude, car si, en pensée, on voulait s'imaginer que le dieu Amon-Râ remettait au pharaon son sceptre *ouas* et non pas sa *khopesh*, et que pour faire cela, il devrait relever sa main gauche au niveau auquel se trouve sa droite, armée du *khopesh*, le sommet du sceptre *ouas* devrait arriver à la même hauteur que le sceptre lotiforme de la déesse.

Les représentations sur la stèle de Tell-Nebi-Mendou se rapportent sans doute à un moment où, après les campagnes victorieuses des premières années du règne de Seti Ier, la paix était revenue en Syrie et en Palestine.

A côté des dieux purement égyptiens, le pharaon Séti Ier (stèle de Tell-Nébi-Mendou), ne refuse pas de reconnaître le culte des dieux du pays et, sous le nom de Soutekh, il introduit sur cette stèle un des Baalim syriens, qui plus tard sont tous nommés des Soutekhs dans le traité de Ramsès II avec Khattousili, le roi des Khétas.²

A la même époque se rapportent très probablement les deux stèles de Séti Ier trouvées, l'une à Tell-esh-Shihâb et l'autre à Beth-Shéan.³ Malheureusement ces stèles ne sont pas conservées en entier.

La stèle de Tell-esh-Shiliâb (Fig. 14) ne représente que la partie supérieure de la pierre, avec la représentation du pharaon Séti Ier coiffé d'un casque de guerre, faisant devant un autel une offrande à Amon-Râ et à Mout. Le bas des figures, à partir des genoux, a été emporté par une cassure, et nous ne pouvons que supposer qu'au bas de la stèle il se soit trouvé une inscription. Par contre, la stèle de Beth-Shéan offre un texte hiéroglyphique de vingt lignes, contenant, outre deux cartouches de Séti Ier (sur la seconde et la dernière ligne du texte) la mention des peuples Rotennou, Aperou et d'autres.⁴

Cette inscription est surmontée des restes d'une scène dans laquelle très probablement le pharaon Séti Ier était représenté en prière devant une ou deux divinités. Actuellement, on ne voit que deux paires de jambes, ayant la base

¹ Voir sur un relief à Abou Simbel de l'époque de Ramsès II, sur un relief à Karnak dans le temple de Ramsès III, au temple de Redesieh (Séti Ier), Lepsius, *Denkmauer*, Abt. III, pl. 195c, 207b, 139a, 144.

² S. Langdon and Alan H. Gardiner, *The Journal of Egyptian Archaeology*, Vol. VI, p. 194.

³ Clarence S. Fisher, *The Museum Journal*, 1922, March, p. 44.

⁴ *The Journal of Eg. Archaeology*, April, 1922, p. 109; *Biblica*, Vol. 3, Fasc. 2, 1922, p. 271.

d'un autel entre eux. A gauche de la stèle, manquent le commencement des lignes (excepté la dernière) et une partie de la scène d'adoration. On y aurait pu placer un troisième personnage, et celui-ci était peut-être une déesse comme celle qu'on voit sur la stèle de Tell-esh-Shihâb.¹

La présence combinée sur la stèle de Beth-Shéan d'une scène d'adoration dans le haut et d'un texte long hiéroglyphique dans le bas, nous donne le droit de supposer que les stèles de Tell-Nébi-Mendou, et de Tell-esh-Shihâb avaient chacune, dans sa partie inférieure, une inscription hiéroglyphique plus ou moins longue.

GRÉGOIRE LOUKIANOFF.

¹ G. A. Smith, "Notes of a journey through Hauran," *Palestine Exploration Fund*, 1901, p. 347; H. Gressmann, *Altorientalische Texte und Bilder*, 1909, Band II, S. 247.

THE PALACE TITLES.

Sources.	
1 <i>heqă</i> , chief.	15-25 king's titles.
2 <i>her-tep-oă</i> , ruler.	26-51 queen's.
3 <i>uo</i> , peer.	52-59 prince's.
4 <i>hati-o</i> , leader.	60-82 palace.
5 <i>oă</i> , warden.	83-114 palace staff.
6 <i>ur</i> , mayor.	115-121 <i>per onkh</i> .
7 <i>sar</i> , Lord.	122-148 occupants of palace
8 <i>kherp</i> , controller.	149-172 royal toilet.
9 <i>sekhem</i> .	173-197 insignia.
10 <i>ră</i> , commander, <i>mer</i> , intendant.	198-214 followers.
11 <i>ari</i> , keeper.	215-253 guards.
12 <i>sehez</i> , expert.	254-265 attendants.
13 <i>okhenuti</i> , diwan.	262-289 physicians.
14 <i>ot</i> , officer.	290-313 companions.
	314-331 praisers.

THE various official titles of the Egyptians provide the widest means of understanding the organisation of their society, and help to explain the structure of one of the most permanent and successful modes of life. These titles have not yet received the attention due, and the present article is a first sketch of the system of the palace officials, which will be followed by lists of the other sections of official life. Such will form a nucleus which will, I hope, be extended by additions and corrections, and any titles sent to me will be incorporated in a more permanent edition in future. The aim of this collection is to include all variants which will throw light on changes or on shades of meaning, also examples which show the earliest stage of an office, and sometimes the latest, where it had a long continuance. The sources are very widespread, and to include every possible document would have delayed this work, probably for many years; it seemed best, therefore, to begin with the larger and more obvious sources, to arrange the material of these, and then to add gradually to the collection as opportunity occurs. The last such collection was that of Brugsch's *Aegyptologie*, which is still valuable after a third of a century, though at that time the common sign of a cylinder seal and necklace was called a bag; even to this day it is referred to as "schatz," the Treasury, instead of the Exchequer. The seal was essentially for vouching for receipts and payments in all grades of officials. To understand the titles we must always have before us the structure of government, and think of Uganda and of modern Egypt, and realise different functions by the more familiar examples of our own official world. The study of the origins and real nature of hieroglyphic signs has been mainly developed since Brugsch wrote, and the first appeal must always be to the actual nature of sign, from which a secondary meaning has often been evolved.

The sources here used are partly compiled works, partly monographs. The collected material lay in Brugsch's *Aegyptologie*, Murray's *Names and Titles of the Old Kingdom*, Sethe's *Urkunden*, Lange and Schäfer's *Grab und Denksteine des Mittleren Reiches*, Weil's *Die Vesiere*, Lieblein's *Dictionnaire de Noms*, Legrain's *Répertoire Généalogique*, Gardiner and Weigall's *Topographical Catalogue of Private Tombs at Thebes*, with Engelbach's continuation, Lanzone's catalogue of

Turin, and the *Annales du Service*, especially for the later period: an old MS. list in the notebooks of Dr. Birch contained some titles not met with elsewhere. The original sources have been looked up in cases of difficulty, and also for monographs such as *Royal Tombs*, *Beni Hasan*, *Bersheh*, *Meir*, *Sinai*, the *Season in Egypt*, *Medium*, and various lesser sources.

The first question that must be settled is whether the many titles of one man are biographical, or were held all at once while his great tomb was being prepared. There are many explicit biographies; but, on the contrary, among the dozens of titles held by the veziers there are, in the good periods, none of a low grade. Not till the weakest poverty of the Bubastite age was there a vezier who was content to be called a scribe, or servant of the *ka*, or prophet. Otherwise there is nothing incompatible with high rank in the great range of the veziers' titles, though in their pluralities they vastly exceed the Marquis of Steyne.

The sources which explain titles are diverse. There are the official lists of the Hood, Tunis and Leiden papyri, which help us like the *Notitia Dignitatum*, though never equalling a *Whitaker's Almanac*; the biographies give some ascending scales of dignity; the records of expeditions to Hammamat and Sinai supply much in the lower grades; the named figures in tombs, such as at Beni Hasan, are invaluable proofs of meanings; the grouping with other titles, as by veziers, show the importance; the Ptolemaic organisation helps by parallel systems in Greek; there are also the indications of a title belonging to central or to local government, or being held by a man or a woman, which help our discrimination.

There are various classes of titles also to be observed. Some went by inheritance, though needing confirmation by the king, such as *heqā*, chief, *hāt*, leader, or *re-pot*, orderer of people. Others were by individual grant, as *nesut rekh*, knowing the king, or courtier, and *nesut tēp kher*, head next to the king, or viceroy. Some may have been probably purely honorary, especially when a title wore down to insignificance, like Mr. or Esq. The greater part of titles were, however, connected with distinct duties, though such were probably performed by order and not personally. The latter part of the Old Kingdom was a great age of pluralities, and also of the degradation of titles. At the petty court of one chieftain, ruling over about 30 miles of country, there were 17 officials with the title which had been that of a viceroy, "head under the king," 38 more called "royal nobles," 7 called chieftains, *heqā*, and the *seh*, hall of audience, had come to be the name of the kitchen. Hence we must allow latitude in understanding titles, much as in future ages it must not be supposed that every esquire went out with his shield daily to attend on his knight, nor that every knight was a cavalryman, nor that every K.C. gave his advice to the king.

Before looking at the various departments we should settle on some equivalents for the grades named in all departments. This has usually been left to the chance mood of a translator, with much variation and incongruity. It is only by looking at all the usages of a word that the limits of it can be expressed by an equivalent, so far as modern terms allow. We must have regard to the applicability of it in all the cases, whether it implied administrative or only executive functions, and the status of the holder. Until we can nail down each term to a fixed equivalent, the sense of the organisation will be out of reach of any but a translator, who usually disregards the social and scientific meaning of his material. The numbers in the following pages refer to the hieroglyphic titles on the plate pages; thus the *corpus* of titles is kept together, apart from the more or less tentative explanations of them.

The *heqā* (1), commonly rendered "prince," cannot be taken thus in some cases, as the *heqā* of agricultural land, of the temple of a king, or of a mastaba tomb; "chief" is the only available word, or "chieftain," if we need to keep clear of confusion with an adjective. This will meet the highest requirement, of the king being "chieftain of the chiefs," and the chief of a tribe agrees to the status of the *heqā* of a nome.

A less independent position was the *her tēp oā* (2), or great head over a nome, limited to the nome governors of Upper Egypt—not a primitive title like *heqā*, but probably nominated by the king. For this "ruler" would be a non-committal equivalent.

Another important title has been obscured by its being turned into an adjective; *uo* (3), the harpoon, used for "alone" or "singly," was the title of a sole ruler, as the *uo* of the lake in the 1st dynasty, and later the "great *uo* of the lake of Horus," a "great *uo* of the council hall," an "intendant of the diwan of the *uo* house" (club house), and a "great *uo* making the people live." In all these instances *uo* is a title, the "sole one," one who acts on his own responsibility. Further, at Deir el Bahri the row of Hathor priestesses under one king are all *nesut amt uotet*; they could not all be sole favourites, but they were all of *uo* rank. The term seems to mean an independent sole ruler of a district or group of people, or president of a council. As such, the *uo* was in the first stage of kingship, in essence the peer of the king; so the title *semēr uotē* is not the "only companion," but the companion of *uotē* rank, and perhaps best rendered by "peer." It implied that the king was *primus inter pares*, surrounded by his peers in origin though not in power. The Ptolemaic equivalent was not "sole friends," but "first friends," of the highest rank.

The *hāti-o* (4) was a high title which essentially means the first person in front of others. The idea is that of *dux*: but duke would not fit in all cases, such as *hātio* of the temple of a king, or the cattle of Mētu, or of prophets. "Leader" is the meaning which will best agree to all the examples of the word; but it does not imply necessarily independence, like *heqā* or *uo*. The modern *mudir* is likewise applicable to leadership in various positions. A title which was hardly more than an adjective is *oā* (5), "great" or "high"; it is used of the manager of groups of foreigners in or near Egypt, the head of the customs, of the palace, or the audience hall, of the management of buildings and of quarries. In view of such varied duties our word "Warden" seems to agree most closely, like our Warden of the Cinque Ports, or of All Souls, or of the Standards.

Another such title was *ur* (6), "great" or "large." It is used of Notables, of one of the Council of Thirty, of the head of the queen's house, of the police, or of building. Yet there was a chief and a controller of the *uru*. The *ur* was the greatest person in an affair, the *maior*, and in its real sense "mayor" will best accord with this, and the *uru* of the South may well have been the mayors of cities.

As the *ur* judged Upper Egypt, so the *sar* (7) judged Middle Egypt. He was a civil official, but never military; whereas in Hebrew *sar* is usually military, "captain," or implies by "prince" that he belonged to the central government. In Middle Egypt the title was expressly local, one in each nome, and beside the *saru* council there was a *sar* of Memphis and one of Thebes. The daughter of Sneferu was a female *sar*, or Sarah. Our word "Lord," with its local and legislative connections, seems closely to correspond, and has also its feminine.

1	2	3	4	56	xviii. N.R.	67
5	6	7	8	57	L-1013	68
9	10	11	12	58	LD-II.102	69
13	14	15	16	59	GWT.258	70
17	18	19	20	60	V LD-II.45-8	71
21	22	23	24	61	V S.M.IV,V	72
TITLE DYN. SOURCE NAME				62	MM.D.52	73
25	XII	N.Bh.IXXXII	74	63	M.M.D.23	74
26	1 RT-II.ii8	75	64	MK C.20075	75	
27	V M.M.D.5	76	65	XIX LD-III.132n	76	
28	XII	77	66	IV LD-II.34g	77	
29	II RT-II.XXIV.210	78	67	V LD-II.76-8	78	
30	IV LD-II.14A	79	68	IV M.M.B.1	79	
31	IV LD-II.14A	80	69	IV-V LD-II.95c	80	
32	VI S.U.I.117	81	70	XIX M.A.B.II.56	81	
33	XII N.Bh.I.82	82	71	RO. B.A. 222	N.N.	
34	XVIII AS IX.95	83	72	V MM.C.I	83	
35	XVIII LD-III.3c	84	73	I R.T.I. XVIII.2	N.N.	
36	XVIII SU.IV.29	85	74	OK M.M.G.O	84	
37	A.S.X.III.	86	75	VI M.A.F.1.193	85	
38	XVIII LD-III.62	87	76	VI B.G.	86	
39	A.S.X.III	88	77	MK C 20184	87	
40	A.S.VI.131	89	78	MK.C 20103	88	
41	A.S.VIII.265	90	79	XXII H.P.	N.N.	
42	A.S.IV.184	91	80	XII P.C.5	89	
43	XXVI LD-III.274	92	81	L.448	90	
44	XII C.20231	93	82	MK.C 20577	91	
45	XVIII FL.1505	94	83	NEDERL.	92	
46	XVIII N.R.	95	84	MUS.LXXIV,546	93	
47	XVIII LD-III.25*	96	85	XII P.S.III.81	94	
48	XIX BER.	97	86	XX.LD-III.237	95	
49	XIX BER.	98	87	E.T. 256	96	
50	XX.BM.752	99	88	XII SIN.2.8	97	
51	XX.P.J.IV.4	100	89	MM.H.13	98	
52	III.P.M.	101	90	VI D.G.III,IX	99	
53	XII P.H.	102	91	III M.M.A.1	100	
54	III.P.M.	103	92	V LD-II.49	101	
55	V MM.D.38	104	93	OK D.M.530-7	102	

References:—A.S., Annales du Service. B.A., Brugsch, Aegyptologie. Ber., Berlin. B.G., Bissing, Gemnikai. B.M., British Museum. B.N., Borchardt, NeuserRe. C., Cairo steles. Cop(enhagen). D.G., Davies, Gebrawi. D.M., Daressy, Mera. D.O., Daressy, Ostraka Cat. D.P., Davies, Ptah-hetep. E.T., Engelbach, Theban Tombs. F., Florence. G.W.T., Gardiner-Weigall, Theban Tombs. L., Lieblein, Dictionnaire. L.D., Lepsius, Denkmäler. L.R., Legrain, Repertoire. M.Ab., Mariette, Abydos. M.A.F., Mission Arch. Fran. M.M., Mariette, Mastabas. N.Bh., Newberry, Beni Hasan. N.R., Newberry, Rekhmara. P., Paris, Louvre. P.G., Petrie, Gizeh.

93	MM.E.6-7	133	V MM.D.44	
94	OK L. 53	134	,	
95	VI S.U. 187	135	V LD.11,75	
96	XXII H.P.	136	VI MM.E.14	
97	III L.D.11.3	137	V S.M. VI	
98	VI D.G.11, X	138	IV MM.C.69	
99	MK C.20041	139	V M.M.D.19	
100	MA.20	140	V MM.D.69	
101	P.S. 155	141	V MM.D.53	
102	XVIII G.W.T. 43	142	V MM.D.45	"
103	IV L.D.11,356	143	V MM.D.44	
104	P.S. 165,168	144	IV MM.B.10	
105	XVIII B.M. 464	145	III P.M. XVI	
106	T.2513	146	XVIII E.T. 256	
107	XIX P.S.E.D. LXXIV 244	147	T. L.250	
108	B.M.	148	MK C.20614	
109	R.C. 134	149	I RT. II, V, 14	ZER
110	D.M. 527	150	I RT. II, XII, I	ZER
111	D.M. 531	151	II RT. II, VIII, 12	KA-KAU
112	OK MM.D.47	152	I RT. I, XXVIII	SMERKHET
113	A.S.I. 157	153	MM.D.6	
114	III M.M.A.1	154	V, MM.D.19	
115	V LD.11.79-81	155	V, B.N. 137	
116	IV M.M.B.16	156	V I RT. I, 7-26	
117	XII C.20539	157	V MM.D.3	
118	V.51	158	XII N.B.I, II	
119	XII REC.X-144	159	5U.II.170	
120	IV A.S.XVI.261	160	P.G. 7A	
121	III P.M. XX	161	S.U.II.180	
122	VI L.D.11,110.0	162	VI A.S.XV,3,12	
123	IV L.D.11,75	163	IX S.U.II,131	
124	IV L.D.11,14	164	M.A.F.1,205	
125	IV M.M.C.15	165	V LD.II,91C	
126	MK.C.20010,XVIII E.T.308	166	V LD.II,65	
127	V S.U.I.124	167	IV-V LD.II,91	
128	XII REC.X-144	168	V M.M.G.H.	
129	V MM.D.42	169	V LD.II,91C	
130	MK.C.20322,XVIII L.R. 205	170	V MM.D.40	
131	XII A.S.VIII,48	171	V M.M.D.24	
132	V L.D.II,60	172	XXII H.P. N.N.	

P.H., Papyrus, Hood. P.J., Papyrus, Judicaire. P.K., Petrie, Koptos. P.M., Petrie, Medium. P.S., Petrie, Season. P.Sed., Petrie, Sediment. R.C., Rosellini, Mon. Civile. Rec(ueil). R.T., Royal Tombs. S.B.A., Trans., Soc. Biblical Arch. Sin., Gardiner, Sinai. S.M., Murray, Saqqara Mastabas. ST(ockholm). S.U., Sethe, Urkunden. T(urin). T.C., Tombs of Courtiers. V(ienna). Z.A.S., Zeits. Aeg. Spr.

There is some confusion between *sar*, lord, and a similar figure for *semsu*, elder. It is certain that the *saru* formed the Council of Six of Middle Egypt, but whether the *hayt* , hall of judgment, was of *saru* or elders seems hardly defined. Similarly, there is a confusion between the *kherp* (8), sceptre of a controller, and the *sekhem* (9), sceptre of might or power. Where spelled out, the word is usually *kherp* in titles, and more applicable to the management of a body of men. It is applied to the Inundation (which may be controlled, but not dominated), to elders, the Home Office, to the populace, sheep and land in the Ist dynasty; later, it expresses control of the palace, the thrones, the lords of south and north, the kingship, the crown servants, the peasants and the priests. Thus "Controller" seems to be the only word applicable to all of these.

An early expression was to use the mouth sign *ră* (10) to express speech, and therefore command. The command of the ancient capitals of south and north was *ră Nekhen* and *ră Pe*. This sense of command, or ordering, passed on into a combined phrase, "in command," *em ră*, and was shortened to *mer*. The scope of the rank was applied to buildings, animals, grain, public works, land, yet also to the crowns, the treasury, and courts of justice; it implies every form of official observation and checking, but without any originating action. Thus "Intendant" is the nearest form, usual enough in French, which we generally overload as superintendent.

The herdsman seated, *ari* (11), with his staff and hobble-rope, was the emblem of guarding or watching, applied to gates, to public offices, canals, a chariot, or a balance. "Keeper" will best accord with the scope of this title.

An epithet often added to grades of titles, and sometimes forming the whole title, is *sehez* (12), literally, making bright or clear. It is applied to all kinds of subjects—medicine, accounts, scribes, rough work, artistic work, to the followers and to lords. The sense is that of clearing up or explaining, as of something out of the ordinary routine. The *sehezu* formed a corps or body, with a *sehez sehezu*, manager, and seem to have been drawn on for special service in any department. They were "Expert" in various subjects—a sort of technical staff.

The commonest terms for offices were *okhenuti* (13) and *ot* (14). The former was the head office for a whole subject, though less in importance than our term "ministry"; it was most nearly a bureau or "diwan," a term which had better be adopted for it. The highest example was the king's office for receiving messengers and foreigners, and it was also applied to the treasury, to sailors, to corn and other matters of central business. The *ot* (14) was merely a public office of any kind in any place, for mere routine.

These preliminary definitions of grades, which appear in all kinds of departments, are needed as there have been various renderings regardless of the range of meaning required. Other titles which belong to special subjects will be dealt with under the section concerned.

The royal titles are the earliest that we can trace, and each of them implies a separate kind of rule. They were gradually increased in successive ages, down to the Vth dynasty. The first title was that of the red crown, *deshert* (15), which was carefully modelled in relief on a jar of S.D. 35-39, and therefore of the first prehistoric civilisation, after the Badarian (P. *Naqada* lii, 75). It is obviously a cap, like that of the Doge of Venice, with an ostrich feather stuck upright in it. We know more about it than did the historic Egyptians, who could make nothing of the traditional form which had reached them, and lengthened the high back,

and reduced the feather to a line which had no meaning. This was later the crown of Sais and of the goddess Neit, thus evidently of Libyan origin, and finding this far south, at Naqada, agrees with the Libyan source of the civilisation of that period.

Next, there is found in the later prehistoric age the plant of the South, *res* (16), roughly drawn on a pot, somewhere between S.D. 40 and 67; this became the *nesut* (16), title of the king of Upper Egypt. At this same time the ruler of the Delta was probably the *heq̄* (1) of Heliopolis, as that was later the sacred symbol of that city. The eastern position of this symbol points to an invasion of shepherd kings from Syria, like those of the VIIth and XVth dynasties.

The dynastic people settling in Upper Egypt adopted the falcon worship which they probably found there, and the king's soul was figured as a falcon ever after. To express his residence in the palace they represented the panelled wooden building, with the falcon over it (17), and this (as belonging to the ruling race) ever after took precedence of all other titles.

The new-comers married into the Saite family of Delta kings, and took the bee, *bat* (18), as the emblem of their northern dominion, the title *bati* clinging to the Libyan kings down to Greek times, in the form of *battos*. This almost superseded the *deshert*, crown (15), as the sign of the northern kingdom.

On having conquered both south and north, the double lordship was expressed by repeating the title *neb*, lord, as *nebiu* (19); during the Ist dynasty this was expanded (20) by adding the figures of the vulture of Nekheb (El Kab, the eastern fortress, facing the old capital of Nekhen, Hierakonpolis) and the uraeus of Uazet the goddess of Buto in the Delta. Thus the meaning of the double lordship was defined: the usual later title, *neb taui* (21), or lord of two lands, may have been transferred from this; but it is strictly the two horizons, east and west, as is shown by a local prince having ruled his *taui*, both lands.

In the dynastic times other titles were added. The cartouche (22) first appears in the IIIrd dynasty; it is copied from the twisted cord worn round the neck of the high priest of Horus, with the two ends tied in front horizontally, as shown on the statue of Ra-sonkh (Louvre A, 39). It implies, therefore, that the king was high priest of Horus, identified with the falcon god of the dynasty.

The *Her-nubti* title (23) was adopted in the IVth dynasty, to express the triumph of the Horus worshippers over the party of Set of Nubt.

The *Sə Ra* title (24) was regularly adopted in the Vth dynasty, to express the descent from Ra, through his priests, who probably personated the god. It is first seen a little earlier.

An interesting title of a king appears in (25), where the great noble Khnum-hetep of Beni Hasan is entitled "the New Year king of all the nobles." The New Year king survived till modern times as the degraded festival figure, but here we see that he was apparently an elective king of the old hereditary nobles, surviving from predynastic times. This is dealt with in detail in the first article in this number. There is also another trace of New Year ceremonies which will come in a later section, where the making fire on the New Year day for the old order of senators is named.

The queens also acquired a series of titles, but at a later period than the kings. At the beginning of the Ist dynasty there is only the description "United to the double lordship" (26), which remains in a fuller form in the Vth dynasty (27), and was altered in the XIIth dynasty to "United to Horus" (28). In the Ist dynasty Merneit has no title or description on her great stele, only the plain

name. At the end of the IIInd dynasty there is the phrase, "All things she says are done for her" (29), and this reappears in the XVIIIth dynasty. The plain title, "Wife of the king" (30) begins in the IVth dynasty, and the description as she who "beholds Horus-Set" (31), showing that the king was still regarded as personifying the two gods, who had been "in peace" at the end of the IIInd dynasty. In the VIth dynasty there are the phrases "Companion to Horus, bound up with Horus" (32).

In the XIIth dynasty a new aspect of the queen appears, not only as belonging to the king, but having official powers. She was *hent hemut nebt* (33), "Mistress of all women"; as this title appears also for the wife of a nome prince, it seems as if it had some real significance, implying some kind of direction. This title *hent* seems to be probably Libyan in origin, as Queen Aohmes was called *Hent Tamehu* (34), Mistress of the Tamehu Libyans, in the XVIIIth dynasty.

At the same period began the theocratic connection, when Aohmes Nefertari was called *hemt neter* (35), "wife of the god"; the god being specified by Queen Aoh-hetep, who was "divine wife of Amen" (36). As she was black it seems likely that this title was due to Ethiopian influence, for the queens of the Ethiopian dynasty were all divine wives and high-priestesses of Amen. There was also an official *am khenti* (37) "in the harem" of the god under the divine wife. The title "adorer of the god," *duat neter* (38), also begins in the XVIIIth dynasty. There was an intendant (39), an overseer of the gold (40), and a scribe (41) in the harem of the god. The "adorer of the god" had her own staff of a scribe (42) and a major-domo (43), who rose to be the business chief of the Thebaid under the priest-queens of the XXVth and XXVIth dynasties.

In early times there does not seem to have been any separate quarter named for the queen, or harem (*khent*). By the XIIth dynasty the harem had its separate scribe of the *khent* (44); in the XVIIIth there was a "leader of the great *khent*" (45) and an "intendant of the dignities of the *khent*" (46). All of these were men, the last being the great vezier Rekhmara. A curious sign comes into use after the XIIth dynasty for the harem, a corner with a rounded completion of the enclosure, and a smaller enclosure within it (48, 49). This sign could only arise from a rough fencing off in the corner of a ruined building, such as squatters now make. It seems a relic of the rude necessities of life during the destructions by the Hyksos invasion.

The palace apartments of the queen are often named, as by the "intendant of the dwelling of the royal wife Shepset-ra" (47), or the "scribe of the intendant of the harem in the lofty palace of Memphis" (48), or the "scribe of the table of the king's harem" (49), or the "intendant of the royal harem of the great queen, lady of both lands" (50), and the "scribe of the king's harem, *khent*" (51).

The royal children are often named. The great tomb of Meydum was for the king's eldest son, *Nefer-maöt* (52); and in the decline of the monarchy the king's eldest son, *s semsem* (53), had a recognised status. *Ra-hetep* was also a king's son (54), and a king's child, *sezet nesut*, is named in the Vth and XVIIIth dynasties (55, 56). There was a "palace controller of the suckling children," *per oă kherp ne shed mer* (57), also a "daughter of the palace" (58), and a "scribe of the house of the king's children" (59). The tutors and nurses will be noted later.

In considering the palace and its offices we must not think of a compact block of building, still less of a castle. The palace at Amarna covered a large area, in which various buildings were scattered; and in a primitive court at Uganda the

king's great enclosure had large blocks of houses in it with wide roads between, and many guards camped in tents in the enclosure, as well as chiefs serving the king. The same system is seen in Oriental palaces where not under foreign influence or compacted for defence.

The nature of the main building is indicated in its simplest form by the soul house, or in its greatest style by the temple plans. The fore-court is an essential part, named in temples (Dendereh) as the *usekht*, from *usekh*, "wide," hence the names for the wide collar, and for a cargo boat of wide beam. In the Old Kingdom there was a controller of the *usekht* (60), an intendant (61), an expert (62), an intendant of the scribes of the *usekht* (63); it was probably the primitive place for royal justice (see (73)).

Another building is also usually rendered as palace, the *oh* (64 to 71), connected with *oho*, up-standing, and represented as a lofty building with a doorway at the base. The form of it suggests a great gateway to the whole royal enclosure, and the high gate tower of Medinet Habu seems to carry on the old idea. There is no suggestion of any business being carried on in this building beyond the duties of the entrance. A keeper of the office of the gate (64), a headman of the office (65), a controller of the gate (66, 67), an intendant (68), an expert (69), and a mayor (70) are all named in different periods. There was a watch with a staff of followers, *em khet res oh* (71). Another great building in the enclosure was a "hall of splendours," which had a controller (72); this was probably for festivals.

Coming now to the great business of public audiences of the king, the first mention is on a seal of the "keeper or commander of the gates of the *usekht* hall for the words of Horus (king) Zet" in the 1st dynasty (73). The *seh* is termed a council hall, but it may not have been for the king. It is possible that it is connected with *sehu*, to assemble, and with the *soh* order of nobles, which will be dealt with later. There was a controller expert (74) and an intendant controller of the *seh* (75). Kagemne was "intendant of all the audience" (76) or hearing of pleas.

The *khă* hall was used by the king (79) and also by the vezier (77). It was the hall of justice in the capital, apart from the halls of Middle and Upper Egypt of the *saru* or *uru*. There are doorkeepers named (77, 78), a warden (79), and an "intendant of the diwan" (80). The golden hall of the *khă* (81) is not explained. There was a guard of the *khă* hall, provided by the *remtu*, or lowest class of labourers (82).

In the more general service of the whole palace there are named a "servant *sezem osh* (hearing a call) of the great double house of Pharaoh" (83), an "intendant of the great house" (84), "in the king's palace" (85), an "intendant of the diwan of Pharaoh" (86), an "overseer of the palace" (87), and an "elder of the great house" (88). The safety of the palace was secured by a guard, *nekh* (89), or *să ur* (90). There were intendants of the great house (91), and of all the house of the king (92). The office of the palace had an intendant (93), a keeper (94), a chief (95), and in late times a warden (96). The gates of the palace had regular officials, a "controller of the gate of the king Horus" (97), an intendant (98), keeper (99), and overseer (100), and there was a "scribe of the seal of the gate" (101).

The *set* or *ast* of the king (102), figured by a throne, implies much what a "gentleman's seat" does in English, a rather important residence, not necessarily the main palace. The "intendant of the noble *asut* of the great house" (103) suggests the various separate buildings in the royal enclosure. The "keeper of the door of the *ast*" (105) probably attended to one of the lesser palaces.

There were various lesser buildings, such as the *ahu*, stables (106), and stables of the diwan (107), and the stables of the king (108, 109). All of these had overseers, and no other rank of management is named. There was a place of cooling, not only for water supply, but to maintain a cool residence, as in the "palace cooling great house" (113); a controller (110), scribe (111), and intendant (112) were attached to this cool house. There was also a cooling chamber of the slaughter-house, which will be noted under food. A little booth or lodge of the king, made of entwined palm sticks (114) is named in early times; it would be like the Bishari mat huts at Aswan.

The *het onkh*, house of life (115-120), was an important office, not yet clearly defined. It was closely connected with the king, as there was a controller of the two thrones (115) in it, and a scribe of the king (118) in it. It was a place of royal function, connected with writing (118, 119) and with Safekh, the goddess of writing (116). It also had estates of agricultural land, *her adeb* (116, 120), connected. The presidency of the king in it (115) almost proves that judicial or legislative business was conducted. It may be that the king presided over the register of *onkhu*, living persons, for selection of corvée and conscription.

The inhabitants of the large enclosure of the "great house" were very varied, for the ruler's dwelling was in fact the chief office of all the government, as it was in Rome under Augustus, and as may be seen on a small scale now in the house of an *omdeh*.

There were many royal favourites (121, 122), *amā*, the tree sign. The men always are *amā-o* (121), or favourite agent, one who acts in any way. The women were without duties, merely *amt* or *amt ur* (124), great favourite; or royal favourite, *nesut amt* (122); or royal favourite of high rank, *nesut amt uoti* (125). The last title continues to the New Kingdom, the others disappear. These favourites were not merely casual persons, but were an organised body with a ruler (128) and an intendant (123). They were apparently sent to the court from a distance, as the great vezier Una had the charge of "bringing the tribute of royal favourites" (127).

There was another class, the "royal adorners," *se khckeru*, of the Horus king (129), otherwise written *nesut kheker* (130), or *khekeru ur*, great adorer (131). These adorners were always women, apparently the widows who attended to the upkeep of the tomb, as in Central Africa now; they are recruited by fresh girls for some generations, but any are free to leave the service and marry (Anc. Eg., 1921, 52); thus there were many nobles' wives who had been royal adorners.

Another sign  differs from both the previous, but as it is spelled sometimes as *shekeru* (133, 134) it has been supposed to be equivalent to *khekeru*. There was, however, a difference in its nature; it was essentially an office held by men, twelve instances to one of a woman. Yet it is not the same as the *amā* men, as they always have the arm *o* added, while  never has the arm after it. These *shekeru* were a more organised body than the other classes; there was an "intendant of the registry of the king's *shekeru*" (137, 138, 139), a secretary, *her seseshta* (140), and an expert "palace expert intendant of the *merhert* of the royal *shekeru*" (143). This word *merhert* cannot be *merhet*, ointment, as it has the *hert*, "sky" determinative (142, 143). There is also an "intendant of royal *shekeru ne hemu*". This group of *shekeru* needs explanation, taking into account their obvious differences from the *khekeru*. The possible connection with *sakar*, hired, or *shekar*, strong drink (Heb.), should be kept in mind.

There were children of nobles brought up in the palace, as in the IIIrd dynasty there is a "child known to the palace" (145), and in the later times there was an institution of the *kaip* (concealed place) or nursery, a quarter for children where the nobility associated with the royal children. A "child of the *kaip*" (146) is often named in biographies, and there was an "intendant of the diwan of the *kaip*" (147, 148).

The king's toilet is often named in early times. There were bowls for the washing of the hands in the 1st dynasty (149, 150) and for the washing of king Ka-kau (151). Under Semerkhet a sealing shows that there was a "mouth washing of the palace" (152); the sign is also applied to drink (*P. Medium*, xxiv), but the sealing came from a small packet tied up in cloth, which could not belong to wine, but might well have been a packet of natron mouth wash. In the lists of offerings, after the morning meal of bread and beef and beer, water and natron were used to clean the mouth (*Sediment*, 4, pl. xii). There was an "intendant of the mouth washing" (153), and "of all the places of the royal mouth wash" (154). Down to the XIIth dynasty there was an "*ur* of the hand washing in the king's house" (157-154); also an "expert belonging to the cabinet (locked room) of the king's mouth wash" (160). There were also an "intendant of the *okheti* of the hand washing" (161), probably the braziers (*okh*) for heating the water; and an "intendant of the basin (*shot*) of the desired place of his lord" (162, 163). The care for cleanliness extended to the household, as there was the "palace controller of washing hands" (164).

The shaving was cared for specially in the Vth dynasty, when there was a *nesut ar ushr* (165), "royal maker bare," denoted by the cut-off lock of hair; also the controller of the king's shaving (165) and the "friend, controller of shaving" (167), a scribe of shaving (168), palace shaver (169), and a royal expert (170). In the late list of dignities is the "overseer of skilful shavers of the palace" (171), and in a Roman list are the barbers, *khoqay* (172).

The care of the regalia was naturally a special charge of the "intendant of the two crowns" (173), and there was a "controller of the store-rooms, lower crown" (174) and "of the two crowns" (175) (the meaning of this sign as store-rooms will be dealt with, under stores). Also a "great royal warden of the lower crown" (176). In later times the two crowns *hezt* and *deshert* were combined as *pa sekhenti*, the two dominions, the *pskhent* of the Greeks (177). There was also a "scribe bearing the *mehet* (uraeus), lord of brilliance" (178), the uraeus on the king's forehead being specially sacred. There was also a keeper of the royal diadem (179) and an overseer of the head-cloth, *nems* (180). In the Middle Kingdom there appears one "making inventory of the statues (*tet*) and ensigns (*äms*)" (181). The royal sceptre *heqä* had a bearer (182); there were also bearers of the weapons (*khou*) of the kings in the XVIIIth dynasty (183, 184) (see (214)).

The two thrones of south and north are represented in the *sed* festival of the VIth dynasty, and a controller of them is named in the XIth dynasty (185). The XIIth dynasty had an overseer of three thrones (186); this might be a plural of more than three, implying all the thrones of the earth, but it seems more likely, from the precision and absence of bombast of that age, that a third throne was intended, and as at that time the south was the region of conquest, this would be the throne of Ethiopia. The overseer of the thrones (187) is named later, and an overseer of the carrying litter (188). The basis of the thrones had a separate keeper, "over the steps" (*khend*) (189-190), determined by the square basis and the slope up to the throne. There was apparently an "elder of the throne

base" (191). In the centre of the great court of the palace of Apries at Memphis there was sunk in the pavement a very accurately cut box of stone, which formerly had a lid over it. This seemed likely to be intended to contain a basis for a throne, which could be lifted out and placed in position when required (*Palace of Apries*, pp. 2, 3). The throne itself would, of course, be kept in a locked store-room, the *nest khentet*, or "cabinet of the throne" (192).

The escort of the king consisted of followers, *khetu*, "behind" the king, managed by an *urkhet* or mayor of the followers (193), who were "in the followers" (194). A scribe of the followers from the desert Tenu people is named (195.) There was occasionally a *sennu* of the king (196), usually rendered "guide."

The principal escort in the open country was the *shemsu*, occasionally an "expert *shemsu*" (197). This sign is explained in detail by a delicately painted example on a tablet in Turin; the tall upright line turned over above is the great hunting shield which screened the hunter, carried on the back of the follower by a broad band at the middle; the line projecting above that is the large pointed hunting knife, and the line sloping below is the leg of the follower walking forward. The titles are "shemsu of his lord for following him" (198); "his *shemsu* in the following of his majesty" (199); "royal *shemsu* in his dwelling" (200); "upon the deserts" (201, 202); "royal *shemsu* for following after his lord in the south and north" (203); the controller, overseer and seal bearer (204-5-6-7) show that these followers were an organised body, with an office and a messenger (208). There was a *shemsu* of the out-of-the-way corners of the southern towns (210). The organisation is shown by their having a chief of their own, *shemsu shemsu* (211), not an outside authority; for such a body, owing allegiance to a king or noble, this title implies a coherent union appointing its own head. In Saite times there was a female *shemsu* for the priestess-queen of Thebes (212); a *shemsu* of the ships is also mentioned (213). A bearer of the bow of the king is known (214), and intendants of the house of elders of the king (215) and queen (216).

The royal guard was a very important body, usually directly under the vezier. It has not been recognised hitherto, as it is written with the waistcloth sign; but it would be absurd to suppose the great Rekhmara managing an article of clothing, and the title is placed between the highest offices, such as the viceroy and royal seal bearer (S·U·I, 118). In primitive days men of inferior rank seldom wore more than a girdle, and the full loin cloth from waist to knee would distinguish a guardsman, like a bearskin now. The *sheny* (219) who surrounded the king wore the *shent* or *shendyt* dress (218); the usual title is controller of all the guard (220, 221); there was also an "intendant of the king's guard" (222).

A lower grade of guard, not under the veziers, was the *sāu*, written with the heel rope (223) or the amulet (224). These, by their number and inferiority, were the general police, not specially attached to the palace. One of the guard was simply *am sā*, "in the guard" (223, 224). There were controllers (225), intendants (226), great ones (227), and captains (229) of the guard. In some places, such as temples, the guards were changed, as when one was "in his hour on the third guard" (228). There was a "palace expert of the great guard" (230), a "keeper of the office of the guard" (231). A special body were the chosen guard, *setep sā* (232), with a "leader in the chosen guard" (233), and a "master of the chosen guard" (234). They were selected for service from the others, as it is said of an official that "he made choice of guard for the king every day" (235). There were scribes of the guard (236, 237) and a "fan-bearer of the guard of the great house of Pharaoh" (238), and a royal clothier (or ont-fitter) of the guard, *nesut oper ne*

172	RO.B.A. 227	N.N.	212	212	212
173	V B.N.	213	L. V. 102	213	213
174	VI D.G.I. 3,8,18	214	P. A. 62	214	214
175	V B.G.	215	XVIII L.R. 256	215	215
176	MK.C. 20181	216	216	216	216
177	A.S. XVI, 199	217	L.R. 37	217	217
178	P.C. 107	218	XVIII N.R.	218	218
179	BM. 227	219	xix.5BAXIV, 165	219	219
180		220	V M.M.D. 38	220	220
181	MK.C. 20683	221	XXVI REC.XXI, 67	221	221
182		222	V L.D. II. 75	222	222
183	T. 1459	223	P	223	223
184	A.S. VII, 132	224	L.V 102	224	224
185	XI N.B.II. 5	225	IV B.M. 15	225	225
186	XII C. 20539	226	A.S. III, 75	226	226
187	XIX BER.	227	MM.D. 47	227	227
188	MK.C. 20562	228	A.S. VII, 51	228	228
189	III M.M. A. I	229	XVIII L.R. 339	229	229
190	III "	230	III M.M. A. I	230	230
191	MM.E.II	231	B.M.	231	231
192	V L.D. II. 48	232	D.M. 530	232	232
193	OK M.M.D. 38	233	P.R. 33	233	233
194	MK.C. 20255	234	V I S.U. I, 87	234	234
195	SIN. 184	235	S.U. I, 11	235	235
196	XVIII B.M. 377	236	V S.M.I, XII	236	236
197	V, XII P.P. XXXIII	237	L.R. 274	237	237
198	L.R. 397	238	* e	238	238
199	S.U.II, 165	239	MM.D. 39	239	239
200	XVIII L.R. 218	240	T. 1562	240	240
201	PS. 35	241	V. 81	241	241
202	PS. 27	242	M.A.F.I, 193	242	242
203	BM.	243	III P.M. X	243	243
204	P.P. XXXIII	244	I R.T.I, XV, 16	244	244
205	B.M.	245	V L.D.II, 76-8	245	245
206	MK.C. 20076	246	III M.M.A. 3	246	246
207	RO.B.A. 224	247	IV S.M.I III, I	247	247
208	MK.C. 20019	248	MM.D. 47	248	248
209	MK.C. 20329	249	V. MM.D. 19	249	249
210	A.S.VI, 75	250	AS.XVII, 134	250	250
211	MK.C. 20663	251	XII L.D.II, 139	251	251

252	XII N.Bh. 1, 17	292	IV LD. II, 9 A	424
253	XII " 49	293	IV LD. II, 9 A	424
254	XII LD. III, 114	294	XVIII. L.R. 223	424
255	XII, Q.R. XXV, 5.	295	XVIII. L.R. 314	424
256	BM.	296	IV LD. II, 15 A	424
257	T. 1562	297	L. 20	424
258	XVIII L.R. 45	298	V MM. D. 10	424
259	BIRCH	299	IV LD. II, 34 A	424
260	MK.C 20091	300	V SM. VIII	424
261	P.S. 25	301	XXVI REC. XXI, 67	
262	MK. C 20398	302	XVIII A.S. I. 100	
263	MK. C 20456	303	VI D.G. II; XIX	
264	BM.	304	D.O. 25339	
265	A.S. XV, 217 N.N.	305	XVIII S.B.A. XXIII, 223	
266	V D.R. II, XVIII	306	XVIII L.R. 259	
267	XXVI A.5.1, 163	307	III P.M. XII	
268	MM. D. 12	308	MM. D. II	
269	P.G. VII A	309	XIX T.C. XXXI	
270	A.S. XIII, 172	310	XX B.A. 229	
271	A.S. XV, 236	311	XVIII L.R. 278	
272	III MM. A.3	312	T. 2613	
273	A.S. II, 238 N.N.	313	BM	
274	A.S. V, 124	314	V LD. II, 59	
275	MK C 20089	315	MK C 20089	
276	SIN. 121 N.N.	316	VI LD. II, 81	
277	MK C 20088	317	XXVI LD. III 259	
278	SIN. 85, 136, 143	318	all women V LD. II 59	
279	XVIII BM. 485	319	C	
280	XIX. Cop. V	320	XIX. LEPS, ELLE, II A	
281	SIN. 90	321	C	
282	MM. D. 67	322	XVIII L.R. 223	
283	"	323	PTO. P.K. XXVI, 3	
284	"	324	OK. Z.A.S. 1905, 65	
285	MM. D. 53	325	OK. MM. C. 22	
286	MK. C 20569	326	S.T. 34	
287	MK. C 20025	327	OK. M.A.F. 1, 191	
288	MK. C 20040	328	XVIII G.W.T. 248	
289	IV-V LD. II, 82 F	329	V SM. VIII	
290	I RT. I XXX, XXXI	330	VATICAN 127	
291	III PM. XVIII	331	H.P.	

său (239). The guard of the chief of Heliopolis is twice mentioned (240, 241), suggesting that the ruler of the old principality kept up his state. There was also a strictly personal attendant, *hen zet ef*, "in care of his body" (242).

The axe titles seem to be mixed in character. The veziers in the early times bore two axes (244), and in the IIIrd dynasty is an "axe man causing to cut off," suggesting executions, as a function of the king's son. The high place of the axe man in the VIth dynasty is shown by the list of titles of mayor in the southern court, king's axe man, judge, conservator of waterways (250); there was a registry of the office of the royal axe man (249). All of these suggest that the king's axe-bearer stood at his side to protect him, and to see to the execution of any who were condemned. Other axe titles refer to construction, and will be noted later on. There was also a soldier guard, and a man was *em pehher mashou ent uartu ne heqă* "in the surrounding soldiers of the messengers of the chief" (251), henchmen ready to go with orders. A local guard of five men for a chief seems to be named at Beni Hasan (252, 253).

The fan-bearer was introduced from Syrian influence at the end of the XVIIIth dynasty (Ay), and lasted till dropped by the Saïtes. The "bearer of the fan of the king upon his right hand" (254, 255) was of high political power, as able always to hear affairs and to whisper advice. He was usually the vezier under the Ramessides. There was also a fan-bearer of Amen-ra (256). A fan-maker, "clothier of the fan," is named (258). For state purposes there was a "royal chamber of placing the sandals" (259), whether placing on the feet, or depositing them, is not clear. Another personal service was the "bearer of the king's writing tablet" (260). The bearer of the light is named (261) as "the king's lighting man" (264); *she* is probably for *shemu*, burning. Another title is *mer bōu*, "intendant of lights" (205). Lighting was never extensive anciently, and we may recall that among the Norsemen it was the duty of an attendant to hold a candle opposite the king's dish that he might see to eat.

The physician, *sunn*, was an important person often represented, from the Vth dynasty (266) to the XXVIth (267). There was the palace physician (268), the palace expert physician (270), the intendant (269) and the "office of the body physician" (271). The high noble Hesy was "great in flesh doctoring" (272), and later there are "great ones of flesh" (273, 274), probably surgeons. There was a special "physician of the lake men" (275), perhaps for dealing with malaria in the marshes. A "physician of a gang" appears in Sinai (276), or perhaps of the guard. A remarkable title is the *serq*, which from its association with the physicians is taken by Dr. Gardiner to mean magician. In (277) there is the "physician, controller of the magician," others in (278). The "controller of the *serq* of the king" occurs (279), a later writing in (280). Also a *să serq* (281), magician of a gang or of the guard.

There was also a definite Health department, with an "over secretary of health, *senbet*, in the temple of Tahuti" (282). This points to its being a matter of skill and knowledge, and not of magic. The same man was "the palace intendant of  *senbet* in the dwelling" (283). Here a large pot contains the means of health, and there was a "palace expert" of it (284). The contents of the pot were probably the *senb* incense, which is shown as offered to Amten (L.D. II. v), so called as being used for healthy fumigation. Similarly, there was a man with *rekht*, "knowledge of incense, *senther*, in the palace of the south" (285). In the absence of being able to extract the volatile oils, which we know to be so valuable as disinfectants, the burning of scented material was the best way of

diffusing the vapour ; the establishing of a fumigating department, with a secretary, intendant and expert, was a real step in hygiene. There was also an intendant of the health office, *per ne uză* (286). Prescriptions were made up by the "intendant of the office of measurer of medicine" (287), and the "intendant of medicine, *sheno*." An oculist is mentioned as the "palace expert of making to see" (289).

The companions, *semier* ("causing love" (?)) of the king were many, but were entirely personal and not organised in any way as a body, or with any official management, until the XVIIIth dynasty. They were simply courtiers who had familiar access to the king. In the Ist dynasty we see a "companion of the royal house" (290), and the title occurs both for men and women in the IIIrd dynasty (291). In the IVth dynasty the palace companion was a common title (292). Some headship under a noble of the *soh*, senator, appears in the XIIth dynasty (293). In the XVIIIth, there is a "first companion of the companions" (294), and an elder of the mayors and companions (295). No such control appears over the *semier uoti* (296), or peers, companions of ruling rank, who begin in the IVth dynasty. Various terms are added to the title, as companion of the king (297), or true (298), or (as a prince) companion of his father (299), or being loved (300, 301), or great of love (302), of his lord (303), at the side of the king (304), or without his equal (305).

A title commonly read as *nesut rekh*, "knowing the king," is also spelled more fully with *t*, which gives the reading *ră khet nesut* (307), or *per oă* (308), "ordering the things of the king," or "of the palace," as suggested by Miss Murray. A very familiar person describes that he was "chief, *tep*, in making friends with the lord of both lands himself, for making plans" (306).

The outdoor life was greatly altered by the introduction of the horse. The old chair or donkey was exchanged for the rapid chariot from Syria, and all the terms about it were Semitic. The chariot was the *merkebta*, Heb. *merkabah*, the driver *kazena*, Heb. *katzēn*, captain, the second *seni*, Heb. *sheni*, similar to our borrowing of *chassis*, *chauffeur* and *garage* nowadays. There are here the "chief *kazena* of His Majesty" (309), and "the *kazena* of the diwan" (310). The fighter in the chariot was the *seni* or second man (311). The title (312) seems like a mis-reading of "leader of the charioteers (*qo* for *qor*) of Thebes." The "keeper of the chariot of the king" is named (313).

Adulation was thickly bestowed on the ruler ; as Disraeli said, it should be laid on with a trowel. There was a class of praisers, *hesu*, of whom there was an intendant (314, 315) and a "controller of the crown praisers" (316), both early and late (317). The "great praisers" (318) were all women. There are praisers in the festival (319), and of the king (320-1-2). The princesses were "great of praisers" (323). A curious title was that of the adorer on his knees with hands uplifted, addressing the king, "Oh ! thou," the beginning of a laudation, which reminds us of the day of O ! Sapientia in the Church kalendars.

The singers had a *sehez ne hesot bener măo*, expert of singing truly sweet (325), accompanied by a praiser on the harp (326). The dancers were organised, with an intendant of the registry (327). For the worship of the king there is an "offerer to Men-kheper-ra" (328). Lastly, there were men to fill up all the stray duties of being "intendant of all royal things," *niutsut* (330), and "intendant of the king's servants" (331).

Other articles in future will deal with the management of the country, the agriculture and trades.

THE CAUCASIAN ATLANTIS AND EGYPT.

THE tales about Atlantis have a perpetual fascination for those who love to speculate on the riddles of the past. The latest theory is that of Mr. Reginald Fessenden, which he has put forward in *The Deluged Civilization of the Caucasian Isthmus*, and with additions bearing more on Egypt in the *Christian Science Monthly*, 18th March, 1924. The writer is competent to handle the questions from a scientific point of view, and he has certainly stated some positions which are worth considering independently of his main proposition. It is desirable, therefore, to notice various parts of the theories separately, so as to see how much can be accepted.

There can be no doubt that the Caucasus had a larger place in ancient geography and beliefs than in modern thought. That region was the background of Greek myths—Prometheus, Herakles, Jason; Herodotus knew the general condition of it, and Strabo gives a detailed account of the geography and the tribes. It is not unreasonable, then, to consider if it may be referred to as the region of other half-mythical accounts.

In the legend of the Hesperides there are two opposite accounts confused. According to one source, Herakles advances to Mount Caucasus, kills the vulture which fed on Prometheus, and arrives at Mount Atlas among the Hyperboreans. Here is an entirely different localisation of the myth to that in the western ocean. Mr. Fessenden, after tabulating the various myths, follows the Asiatic clue as the earlier, and considers that the Greeks lost the original view owing to geographical changes; then the myth was transferred to lands which had later come into prominence in the West. He notes that Homer and Hesiod had no knowledge of Spain or the Atlantic, that the description of the ocean of Atlantis will not agree with the later Atlantic, and that there is no submerged area to be traced there belonging to traditional times.

This view that Mount Atlas was Asiatic brings us to the geological standpoint of an “Asiatic Mediterranean” of the early Pleistocene, stretching from the Arctic Ocean to include the Black Sea and the Caspian. This region would be all flooded by the last great submersion to 600-feet level. The connection of the Caspian with the Black Sea lasted much later, and would only require less than 50-feet rise of sea-level to renew their unity. A tradition of this seems shown when Strabo mentions that some persons still believed in a connection of the Caspian with the lake Maiotis (Sea of Azov), the northern branch of the Black Sea. Various legends of Herakles, Atlas, and the Pillars of Herakles, are all, then, taken as belonging to the Black Sea region, and having been later transferred to the West, when the Greeks were familiar with their colonial expansion in Sicily, Italy, Spain and France. The various traditions of the Deluge are next compared, from five different sources, and all refer to the Black Sea or lands adjacent. The nature of the catastrophe involves a sudden rise of sea-level, of amounts up to 125 feet. The conclusion is that a tidal wave in the Atlantis Sea north of the Black Sea caused a rush of water, which flooded all the shores of the Caucasus and destroyed a civilisation in that region. Such was the source of the legends of Atlantis.

An entirely separate course of the new theories is the proposed Egyptian connection with the Caucasus. Until this year anyone viewing such theories from the Egyptian side would have felt them to be outside of reasonable consideration. But a fundamental change has come over Egyptian archaeology with the discovery of the earliest civilisation yet known, which appears to be akin to the Solutrean. The remote district of Badari has now entered into archaeological literature, as the seat of the Badarian culture, of a high type in its pottery and ability to glaze, and well advanced in figure working. Moreover, this is clearly the basis of all the following prehistoric civilisation of Egypt; it forms part of the continuity of civilisation in that land. If—as appears—this is derived from the same stock as the Solutrean culture of Europe, it must have travelled down from the Caucasus region, for the Solutrean work passed north of the Black Sea into Austria, Poland and northern France, without developing on the Mediterranean. Hence the groundwork of Egyptian civilisation—planted on an African people—is from the Caucasus; with it, presumably, arrived a strong stock of the people who brought it, as a mere trade influence could not be supposed to travel so far with such fundamental effect on most arts.

This entirely new outlook finds strong support in ancient statements. Herodotus insists on the resemblances between the Colchians—south of the Caucasus—and the Egyptians in appearance, in customs, and in products. The Colchians are said to be dark by Herodotus, Pindar and Euripides, and Homer and Hesiod speak of Ethiopians in Colchis. Unhappily no research is possible in that region of Georgia, as it is now tortured politically by the Soviet.

The earliest civilisation of Egypt being thus linked to the Caucasus region, we cannot disregard some resemblances of names which Mr. Fessenden brings forward, and which may be further extended. In the Book of the Dead the sun is said to rise over the mountain of Bakhau, and the modern Baku is at the eastern extremity of the Caucasus. The sun is said to set in Tamanu, and the Taman peninsula is at the western end of the Caucasus. Close by that is the lake of Maiotis (Sea of Azov), and the lake Maoti was close to Tamanu in the west (ch. xvii). The gate to the Eastern horizon is called Haukar (Nebseni, ch. xvii), “behind the head of Kar,” and from Colchis the pass to the east is behind the head of the river Kur (Gr. Kuros), which descends to the Caspian, past Tiflis.

Such resemblances of names are sufficiently consistent in their position and in their relation to the probable source of the Egyptians to require full consideration, although we know how easily verbal resemblances may mislead. Any such names brought into Egypt with the first civilisation would necessarily undergo localisation in new positions in and around Egypt. In the Caucasus region the natural fires of petroleum springs, both in the west at Batoum, in Colchis, and in the east at Baku on the Caspian, are claimed as the original idea of the lakes of fire in the Book of the Dead. Further, these fiery streams and marshes are taken to be the origin of the Greek Pyri-phlegethon; the rich valley of the river Alazon is taken to be the origin of Elysion, and Erebus is the dark defile of the pass through the Caucasus. The *Odyssey* contains a sort of guide-book to the petroleum region, and many other connections are claimed. Whatever may be rejected, there seems to be good ground for seriously considering what has been noted above and seeing how far legends and traditions can be substantiated by research.

REVIEWS.

Studies of Early Pottery of the Near East. I.—Mesopotamia, Syria and Egypt and their earliest inter-relations. By H. FRANKFORT, M.A. 8vo. 146 pp. xiii pls. 1924. (Royal Anthropological Institute.)

Such a work as this has long been wanted, to place the results of discoveries in the East clearly before students. Though many publications have dealt with the excavations, yet there was important material still unpublished, which the author has also searched out and been allowed to examine in various Continental museums. Hence this is the most comprehensive account available, especially on the Asiatic side. To begin with, the technical details are set out regarding material, form and decoration. The practical influences are kept in view, in the nature of the clay, the extent of wheel motion, and the habits which determine the shape, and it is sought to use the word "method" for the general character, and reserve "style" for the individual treatment.

The earliest pottery of Susa is carefully described, pointing out that it was solely funerary and copied from the forms of leather vessels used in daily life. The decoration is full of energy: it does not seem to be related to any other source yet known. The close of it was due to the entire desertion of the place for a long period, during which all the walls were ruined and a bed of entirely barren dust accumulated. It is proposed that this was due to a period of drought, which drove away the inhabitants down to the river courses. When there was more rainfall a second civilisation arose, which was linked with the North Syrian naturalistic pottery in form and design. The same two periods are also separate at the site of Musyan, so the division was not merely due to locality. This second-period pottery has also been found in Mesopotamia and Bushire, along with flint hoes, ground stone axes, arrow points, barbed and leaf-shaped, graving points of obsidian and rock crystal, spindle whorls and net sinkers, but no metal. This seems closely parallel in culture to the Badarian of Egypt. Various isolated sites of early pottery are also described, which seem to be more or less in relation to this; but the few glimpses which we get are too scattered and slight to form any continuous account. The wholesale destruction of historic evidences by the unscientific mode of work at Susa and elsewhere is hinted at, but it was really most disgraceful. Accurate and complete record is bitterly needed all over the Eastern sites, but we are supplying scarcely any men or money for the great task.

The whole of these two civilisations ran their course before the Sumerians appeared. These people are here by exclusion limited to arriving from the Persian Gulf, and a Dravidian connection is accepted as the most probable. This guess of Dr. Hall's has been singularly corroborated by the sudden discovery in the Punjab of seals with figures of bulls and inscriptions, closely like the Sumerian. These are noticed later in the present number. We should observe here that such a connection does not at all imply that the Sumerians came from India. The mouth of the Persian Gulf at Bandar Abbas is half-way between the Indus and the South Mesopotamian cities. We know nothing yet of the archaeology of the South of Persia, and from there the Sumerians may have branched east and west. They were in no way related to the older Mesopotamians. They brought in domesticated cattle, but had no bows or arrows, and only coarse shaggy clothing.

The older people, on the contrary, were hunters of wild cattle with bow and arrow, and wore fine linen.

A very important point is mentioned, that glass was found in a tomb at Assur, which belongs to about 2500 B.C. This indicates the Tigris source of the occasional pieces of early glass found in Egypt, before the profusion started by the Asiatic artisans of Tahutmes III.

By the time of the triumph of the Semite under Naram-sin "decay had already set in strongly," and the political overthrow of the Sumerians by their new masters would entirely accord with this change.

The successive civilisations of Anau, east of the Caspian, are compared with the above; but it is concluded that there is no real connection between them, and copper was used in all the periods of Anau.

The Egyptian study in this work could not include the fresh discovery of the Badarian age, but this would not affect any of the statements concerning the periods here dealt with, except the earliest.

The white cross-lined pottery of S.D. 30-34 is discussed as a young style, tentative and growing, and it is suggested that it originated in Egypt and that the black-topped pottery grew from it; also the Algerian pottery "may have" been due to what Libyans learned in Egypt. Against this, however, is the difference of forms of the cross-lined and the black-top pottery. Now, further, we can add that the black top was a modification of the earlier Badarian ware. The white cross-lined is intrusive on that development, with new forms and painted designs, both unknown in Badarian and not established in later times. This seems to prove that it was intrusive, brought by the people who started the S.D. 30 civilisation on the back of the old Badarian. It "may have" been entirely imported from Algeria, as the size is always small, but the figures of hippopotami are more likely to be Nilotic.

The decorated pottery of S.D. 40-60 is likewise clear of any resemblance to Susian. It is regarded as a formulated style, but not old or denaturalized. It is agreed that the source of the people was probably in the eastern mountains by the Red Sea, and that they came in at S.D. 38 and superposed their stone vases and the pottery imitations on the older culture. Gradually they copied the Egyptian subjects, ending with the ship designs adopted in 45.

Regarding the introduction of new kinds of pottery and art, in order to pacify the *a priori* ideas of anti-invasion writers, there is the statement that "The influx only in exceptional cases takes the form of a hostile invasion." It would be curious to know where the cases are that are not "exceptional," when we find violent slaughter represented in all the early periods of monuments; Khosekhemui boasts of 47,209 slain.

The Syrian connections of Egypt begin with the wavy-handled jars, which it is suggested were imported with olive oil. No olive oil, however, has such an aromatic scent as is typical of the contents of these jars. The importation is considered to have gone on to S.D. 62, and after that the cylindrical form was reached and copied in Egypt. The vases found in the Royal Tombs with resins are taken to be North Syrian, mainly on the ground of the vases of Syrian tribute figured by Sahura, and these are on the way to the form of the Syrian flasks, which grew into the long thin red flasks. These were introduced under Tahutmes III, which points to their coming from a district only reached by his conquests, and therefore from North Syria. The similar vases with orange-dotted triangles can also be paralleled from North Syria.

The bird-shaped vases are found in Egypt, Palestine, Susa, Cappadocia, and Amorgos. The earliest rhyta come from Anatolia or North Syria. It is concluded that the original source was Anatolia, and that they were copied in other lands, east and west and south. The view is suggested that an invasion (shown on the earliest palettes) was pressing into the Delta from the east, and so cut off the connection between Egypt and Syria at about s.d. 60. The view of a large state in the West Delta is upheld, and it is supposed that such was the channel of traffic to Crete. Unhappily, no one has yet found in the Delta any such culture.

The Mesopotamian connections are fully described. The distinction between Egyptian and Sumerian art is noted, the Egyptian always copying living forms, the Sumerian always stylizing, the difference between hieroglyphics and cuneiform. Suddenly, when the dynastic people are arriving, there are found (1) the type of the hero between two animals; (2) the serpo-leopards with linked necks; (3) the lion jumping on a bull's back (the Egyptian always showed him seizing the muzzle of a butting bull); (4) the panelled brick building; (5) the head on socket stones; (6) decorated mace heads; (7) pottery stands; (8) cylinder seals. This introduction of so many Sumerian features in one period of migration shows that a considerable body of men must have entered the country. The cylinders are considered to start from the engraved beads as amulets; to have originated in Mesopotamia or North Syria, thence to have been adopted in Egypt as amulets for future welfare; to have been modified to three-sided prisms in the Delta; to have been adopted for sealing in Sumeria, and to have been brought thence into Egypt as seals in the 1st dynasty.

It will be seen that much reliance is placed on two hypothetical regions, North Syria and the West Delta. Little can yet be shown from the one, and nothing from the other. We must, then, not build anything further on such a foundation, which as yet requires some local evidence. There is also a matter needing some reserve in supposing a direct transmission between Sumeria and Egypt by the dynastic people. The distance is like that of the Norsemen passing by the Atlantic and Mediterranean round to Greece. They did so in their raids, but it was a remarkable feat. The strong linkage with Punt suggests that land as a half-way house, where Sumerian culture may have lingered and adopted the Punite gods Min and Hathor on the way, to be brought in through Hammamat to Koptos.

It is remarked that the amount of dynastic immigration was not large, and that "civilised people do not migrate in a body, nor do they risk all their mental and material possessions by setting out for the unknown." This smacks too much of the assertionist school. We know that by repeated attacks, from s.d. 60 onward, the dynastic race knew Egypt fairly well already, before they tried a conquering movement, much as English people knew Australia or America before they went over by the myriad, without risking the loss of any kind of possessions. Views should always be tested on known historic cases. We do know, however, that where they were strongest the dynastic people were only a tenth of the male population, and brought no women, by the evidence of the cemetery of their temporary capital at Tarkhan.

Misprints should be corrected on p. 101, note 3, pl. xv; p. 120, read Cusae, and note 1, pl. xiii; p. 134, note 3, read xiii E; p. 141, 4 lines up, read pl. xii; p. 142, read Hatshepsut and Akaba. We may cordially hope that Mr. Frankfort's continuation of these studies will be marked by the care, insight and discretion which make the present work a landmark in stabilising our knowledge.

NOTES AND LETTER.

A LONG illustrated account of pre-Aryan Indian remains, by Sir John Marshall, appeared in the *Illustrated London News*, 20 September, followed by a letter from Prof. Sayce, 27 September, and an article by Mr. Gadd and Mr. Sidney Smith on 4 October. The remains have been found in the northernmost part of India, the Punjab and Sind, beneath a Buddhist *stupa* at Mohenjo-Daro, and at Harappa, where are seven or eight successive levels of building. These buildings are massive brick structures, including an altar of glazed bricks, and also marble slabs. The surprise is not only in reaching to pre-Buddhist times, but finding square stone seals with the figure of a bull and diverse inscriptions in characters entirely unknown so far in India. Such are like early Sumerian seals, and many of the characters are so closely like the Sumerian that there can be little doubt of their both coming from one original source. Such seals are dated (even on short chronology) to 3500-2500 B.C. Further, there were many mace heads like the Babylonian, a haematite barrel weight exactly of Syro-Babylonian style, and most extraordinary spiked bangles of blue glass paste. These discoveries open a new world to us, the pre-Aryan civilisation which was shared by the Tigris and the Indus. The original centre may well have been in southern Persia, from whence the culture spread on either hand. At both of the sites of these remains there is "a vast expanse of artificial mounds evidently covering the remains of once-flourishing cities." We are in presence of a great civilisation to be worked out, in India, as also in Mesopotamia. Could we multiply our skilled excavators and our funds by a hundred-fold we should hardly be able to cope with the treasure of history awaiting us.

THE EDITOR, ANCIENT EGYPT.

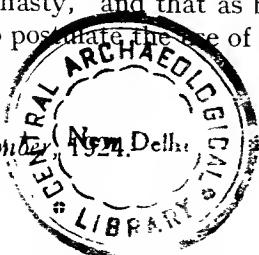
SIR,

In the "Notes and News" of the issue of ANCIENT EGYPT for September it is stated that "The surfaces of the early tombs of the XVIIIth dynasty and of temple sculptures of the XIIth dynasty will bear flooding and scrubbing without any loss of ochres and haematite which were rubbed in and polished," and from this is deduced that white of egg was used to fix the colours. May I venture to point out that Mackay states (ANCIENT EGYPT, 1920, Part II.) that beeswax was employed on the mural paintings in some of the Theban tombs ranging from the time of Amenophis I to that of Amenophis II, that is to say "early tombs of the XVIIIth dynasty," and that as beeswax would not be affected by water it is not necessary to postulate the use of white of egg.

Yours faithfully,

A. LUCAS.

Cairo, November 1924. Delhi.





"A book that is shut is but a block"

CENTRAL ARCHAEOLOGICAL LIBRARY
GOVT. OF INDIA
Department of Archaeology
NEW DELHI.

Please help us to keep the book
clean and moving.